IN THE CIRCUIT COURT OF THE STATE OF OREGON
FOR THE COUNTY OF MULTNOMAH

The Estate of JESSE D. WILLIAMS, Deceased, by and through MAYOLA WILLIAMS, Personal Representative,	) Vol. 13-A
Plaintiff,	) Circuit Court No. 9705-03957
vs.	)
PHILIP MORRIS INCORPORATED,	)
Defendant.	)

A.M.TRANSCRIPT OF PROCEEDINGS

BE IT REMEMBERED, That the above-entitled matter came on regularly for Jury Trial and was heard before the Honorable Anna J. Brown, Judge of Department No. 7C, of the Circuit Court of the County of Multnomah, State of Oregon, commencing at 8:30 a.m., Wedesday, March 10, 1999.

* * *

Reported by Jennifer L. Wiles, CSR, RPR.

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APPEARANCES:

James Coon, Attorney at Law,
William Gaylord, Attorney at Law,
Ray Thomas, Attorney at Law,
Christopher Tauman, Attorney at Law,
appearing on behalf of the Plaintiff;

James Dumas, Attorney at Law,
Michael Harting, Attorney at Law,
Billy Randles, Attorney at Law,
Walter Cofer, Attorney at Law,
Jay Beattie, Attorney at Law,
Pat Sirridge, Attorney at Law,
appearing on behalf of the Defendant.

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(March 10, 1999)

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A.M. P R O C E E D I N G S

* * *

THE COURT: All right. We're on the record regarding the proposed professor of read testimony of Dr. David Burns; is that right?

MR. COON: That is correct, Your Honor.

THE COURT: Okay.

Let me say for the record that last night, off the record, counsel reviewed with me potential objections from the defense and potential responses from the Plaintiff to frame the issue, and we had preliminary discussions, but now is the time for the record for the Plaintiff to make the proposal of what is going to be offered and for what purpose.

MR. COON: That's correct. Thank you, Your Honor.

Dr. Burns -- and I will say, I suppose, procedurally, last night we took out a little more than 60 pages of what had been previously designated, and faxed those designations over to the defense. I'm not sure they have had a chance to counter withdraw, if you will, from the

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cross-examination, but it was probably 11:00 o'clock by the time it happened.

THE COURT: But that means, what I was told off the record, of some 244 pages would be down to some 180 pages, at least, and maybe more, if there were counter withdrawals?

MR. RANDLES: Actually, I think Plaintiff's counsel did better than Mr. Coon indicates. My preliminary count was about 55 pages left by Plaintiff's counsel. So they withdrew the lion's share.

THE COURT: Maybe 60 is what you have left.

MR. COON: Very well. I would accept that count as proposed to the one I made this morning.

THE COURT: Okay.

MR. COON: What we offer Dr. Burns for is several things. No. 1, he has been involved in more Surgeon General reports than any other witness that I'm aware of. Certainly, in this case, Dr. Benowitz being the only other one for our side. So, his perspective on this issue, beginning in about 1975, continuing until very recently, is something that is not to be

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duplicated by any other witness.

Another thing that Dr. Burns does is approaches the physical causation of cancer, which is a thing I think we have not seen, certainly not from a pulmonologist, and that is Dr. Burns' specialty.

So, we certainly offer him for that, to show the jury exactly how, as close as we know, lung cancer begins, what happens to the cells and structures in the lung to cause it.

Also, he can testify and would testify as to the historical sequence by which the consumption of cigarettes increased and the cohorts of those suffering lung cancer increased at times when one would expect that medically.

And I believe Dr. Whelan has testified to that. But, as we discussed off the record, I think Doctor Whelan will be attacked as less than fully impartial, and I think that some testimony that will bolster what she said is perfectly appropriate to have.

There is also reference in Dr. Burns' testimony to statements the Defendants have made, Defendant has made, and their interaction between the Surgeon General's Office and Philip Morris

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concerning tobacco and smoking and health issue.

It would seem to me that when we -- when you take our cuts, Defendant also could cut a number of things. There's a good discussion, a good deal of discussion of addiction. And I don't think we would offer Dr. Burns for discussing specifically that, that topic.

There is the last page which we could withdraw. If we did that, I think it would take out their cross on addiction. If not, if it doesn't have that effect, then we would want to leave it in.

But, otherwise, I think Dr. Burns has been substantially cut, and the relevance, number one, is different and, number two, bolstering of testimony of Dr. Whelan has given.

THE COURT: Okay. Thank you.

Mr. Randles.

MR. RANDLES: Your Honor, a few preliminary comments I think would be useful to the individual designations.

Most of what Dr. Burns offers on the Surgeon General's reports, specifically, was covered by Dr. Benowitz and Dr. Pollay. Both of those have been involved SGRs and talked about

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how they are put together, how they are really important in the scientific community, and both authored chapters. So, I think that discussion, I'll point that out as we go.

In terms of point of view from the pulmonologist, I'm not sure what a pulmonologist offers that is particularly different from the other medical specialists in the case. This is a case on lung cancer. This is really an oncologist, a pathologist case. It's not really a pulmonologist case, but they are bringing in a pulmonologist, live, I think today. So, I don't think Burns offers anything useful there. They are actually bringing a local pulmonologist, I suppose, who actually treated Mr -- you are not bringing?

You're bringing an oncologist.

Well, again, I think an oncologist is on point. The pulmonologist is not. This isn't a heart decease case.

There is a long discussion of the history of tobacco. Again, we go back to the rolling machine, urbanization stuff we have heard from at least Pollay and Benowitz.

And, finally, there actually are several

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pages of addiction and compensation in these designations that we ought to talk about. I certainly agree that it shouldn't be in, but I'll point them out as we go.

THE COURT: Let's go through the proffers and the objections. And I understand for the record that there's a generic objection that this is cumulative, and you'll let me know what any other objection you have as we go forward.

I will say that my concerns are substantially allayed by Mr. Coon's remarks this morning about the time consumption factor as an issue of discretion in terms of deleting redundant testimony.

MR. RANDLES: That is an overview. While Mr. Coon is pulling out a copy, I should also mention I believe I preliminarily counted about five designations that run afoul of motions in limine. So, we are right back to that problem.

THE COURT: That is why we are going to go through them.

Now is this a copy you need to work from, Mr. Coon?

MR. COON: No, I have one right here.

THE COURT: Okay.

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All right. Then Mr. Randles, we'll take this up as your lead here for the objections.

MR. RANDLES: Your Honor, if I may, there's a lot of background material that may or may not prove to be relevant, but I would like to go to the substantive objections first.

THE COURT: Go ahead.

MR. RANDLES: Designations Page 1058.

THE COURT: All right. On mine 1058 is stricken. Page 1058, I have it on my screen as part of line 1.

MR. RANDLES: Yes, Your Honor.

THE COURT: 1058 has lines through it completely.

MR. GAYLORD: 1058 through 1073 is all deleted. Excuse me for interjecting.

MR. RANDLES: I'm -- I'm -- I'm just -- I have egg on my face. I suppose I misunderstood what they sent me. What they did was eliminated 50 pages.

THE COURT: That is what he said.

MR. RANDLES: Yes. And they gave the lines of what was eliminated, not what's designated. I don't know what's designated.

THE COURT: All right. Let's go back

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through your original objections, and we'll just pick up where they have crossed things out because -- do you have a copy like I have with lines through it? If not, I'll just walk down and sit next to you so you can follow along on my copy.

MR. GAYLORD: I'm wondering if this might not be a time to take a moment. I get the feeling that when we conveyed this after 11:00 o'clock last night with our changes we got misunderstood about what we were doing. And I wonder if we and Mr. Randles might benefit from a few minutes to -- because several of the things --

THE COURT: Why don't we give Mr. Randles the copy you gave me? That might be an efficient way for him to compare.

And you let me know, Mr. Randles, when you are ready.

MR. RANDLES: Thank you, Your Honor.

THE COURT: Sure. No problem.

We are off the record.

* * *

(whereupon, after a momentary break, the proceedings continued, as follows:)

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MR. RANDLES: Your Honor, my first objection -- do you have a copy at all?

THE COURT: No.

MR. RANDLES: May I give you my marked-up copies? At least they have all -- you can ignore all of my various highlightings.

I believe the first objection I had was taken care of, which was the youth smoking issue. It appears they have crossed that out. Oh, that was 1036. I'm sorry, Your Honor.

Your Honor, I have no particular objection to 1036 through 1049. It's a bit long, but it's just background about hospitals.

THE COURT: Let me suggest that we not go on the record until you are ready to tell me what you do have an objection to. And I'm not being critical. I'm just simply saying you just go ahead and do what you need to do, and when you have organized what you do object to, let me know.

MR. RANDLES: Thank you.

* * *

(Whereupon, after a break in the proceedings, the proceedings continued, as follows:)

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MR. RANDLES: Your Honor, I believe we are ready to discuss them.

THE COURT: All right.

MR. RANDLES: Your Honor, the first place with an objection is Page 152.

THE COURT: I'm sorry. My page digits are four digit pages.

MR. RANDLES: I'm sorry. 1052.

THE COURT: All right. I'm on Page 1052.

MR. RANDLES: Starting at line 19.

THE COURT: Okay.

And the objection is?

MR. RANDLES: The objection is relevance, first of all, State of California; and, second, taxes.

THE COURT: How far does your objection go?

MR. RANDLES: I suppose to the end of that discussion, which is 10538.

MR. COON: Your Honor, the motion in limine on taxes was about tax revenues and the alleged benefit they provide in some way. This was an effort to get people to stop smoking.

To save time, we can give this one up.

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We go down to line 8 on 1053, that is fine. We'll just take that out.

THE COURT: Starting on line 19, 1052; is that right?

MR. RANDLES: Your Honor, the next objection is --

THE COURT: I just want to confirm that I'm going to cross this out on your copy on line 19, 1052 through line 8 on 1053; is that right?

MR. RANDLES: Yes, Your Honor.

MR. COON: That's right.

THE COURT: Next.

MR. RANDLES: The next one starts 153. Yeah. 1053, line 9, and goes for quite awhile here. It's a duplicative discussion of science of epidemiology, which I believe was covered by Benowitz and Whelan and perhaps another witness. I'm not sure.

THE COURT: And how far do you want me to read?

MR. RANDLES: I would suggest 1054, line 9.

THE COURT: Well, it's all of maybe 23 lines. It's not harmfully redundant. Overruled.

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MR. RANDLES: Your Honor.
THE COURT: Go ahead.
MR. RANDLES: Sorry.
The next question that raises a problem involves a long answer, but it's 1054, starting at line 14, and it's a very long answer, but it involves talking about kids smoking.
THE COURT: All right. 1055, starting at line 14.
Well, if your objection is to the concept of keeping kids from starting to smoke, that objection could be addressed by deleting line 6 and 7 on Page 1055.
Is that acceptable?
MR. COON: We'll take that, yes, Your Honor.
THE COURT: Next.
MR. RANDLES: Your Honor, the next objection is 1074.
THE COURT: Thank you.
MR. RANDLES: And here we start for, I believe, the third time but it could be more than that in this case, the long discussion about the meetings at the Plaza Hotel, Wynder and Graham, all of that sort of thing.

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THE COURT: And the purpose for which this is offered which is not a redundant purpose is?

MR. COON: I don't think I can think of one, Your Honor.

MR. TAUMAN: Give us some time.

THE COURT: Candor is the better part of valor, and you could get credit for that.

Where do we start the deletion?

MR. COON: 1074, line 1, down to 1075, 23.

THE COURT: Acceptable, Mr. Randels?

MR. RANDLES: As far as it goes. We start that discussion -- we continue this discussion on 1076, starting at line 14.

THE COURT: Oh, my, the Frank Statement. Now, you can't tell me we haven't covered that one thoroughly, unless I'm missing a proffer here or a new version on it.

MR. COON: We would accept that deletion for now, Your Honor. We would like to reraise the issue in rebuttal should it be necessary.

THE COURT: Certainly. I'm not precluding anybody ever reraising any issue.

MR. RANDLES: That would strike --

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THE COURT: Just a minute. It looks like they are not yet finished.

MR. COON: It depends on what their cross designations ends up being. If they are going to be arguing something that this requires --

THE COURT: Let me know if you need to have it come back, but right now it seems to me showing the jury the Frank Statement and having a general discussion about it is redundant.

So tell me what you are deleting then, beginning on line 1076, line 14?

MR. COON: And we go down to 1078, line 19.

THE COURT: Thank you.

Next.

MR. RANDLES: The next objection, Your Honor, would start at 1090, line 18, and we get into a discussion of nitrosamines and other chemicals in smoke, which I believe has been covered by Drs. Farone and Morgan, at least.

THE COURT: And what's the purpose for which this is offered that is new?

MR. GAYLORD: May I just speak to it, Your Honor? I think this is preface to what Dr. Burns goes into which nobody has discussed, the

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cellular level effect of the carcinogens on the tissues. And that is definitely new material. This is just kind of the setup for that.

THE COURT: Show me where it leads to that because it seems to me one can certainly talk about cell changes and so forth without getting into the discussion again about alkaloids, which the jury has heard from two witnesses about in some detail.

MR. GAYLORD: It's a ways before he gets to the discussion about cancer and the changes of cells in cancer. But this is the setup in the way this testimony was presented.

That comes up, if I'm reading my notes from last night correctly, I think that is a passage that begins on about Page 1119. So that is a ways ahead. This is not a very long passage. It's just kind of a brief reminder so that when we get to that part --

THE COURT: Well, this is one of those expedient kind of rulings I think I need to make. The time it's going to take me to read all of this and evaluate whether ten lines are redundant or not is simply not worth the effort.

MR. RANDLES: That is fine, Your Honor.

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THE COURT: So, the objection is overruled, for lack of time to process it appropriately. But if there's a cumulative affect here, bring it to my attention. I just don't see that it's not prejudicial. It's just ten lines of stuff we have heard before, which in the scheme of things is in the scheme of things.

MR. RANDLES: I apologize. I'm trying to read my notes.

THE COURT: That is all right. That is all right.

While you are doing that, may I ask the other lawyers something else, without distracting you?

It occurred to me, as we were discussing last night the possible ways to frame up the verdict form, when I was just expressing my preliminary reactions that maybe the defense form was too detail, that the jury might find helpful to have a list of elements that are a part of the instruction packet, not just my words reading to them in a transcript, but some form of visual aid, if you will, which tends to minimize then the need to throw all of those things into a verdict.

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1 And it's a useful tool, I would think,
2 for both sides in argument. For example,
3 Plaintiffs can say we have proved elements A, B,
4 C, D, E, and F; and the defense can say no, they
5 haven't proved element X.
6 I would like you to think about providing
7 the jury a stipulated tool in the form of a chart
8 of elements for each of the claims and maybe for
9 the defenses. It's just something to think about
10 a little bit. They'll get it in the text of the
11 transcript of the jury instructions.
12 But my experience tells me, every time I
13 have been in a jury room to get water or
14 something, while they are not in session, on the
15 walls they have the elements. They have figured
16 it out. They have put it up. But it's simply
17 inevitable that they are going to have to
18 evaluate the evidence against the elements. And,
19 to me, it is helpful to have it.
20 But I know it's not something people have
21 done generally. And so I throw that idea out to
22 you to think about.
23 The other kind of off-the-wall idea I had
24 was that it might be worth thinking about giving
25 the jury your viewer machine so that the jury can

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use the documents in a way that all the of the jury can see the documents at the same time, it's just an idea, as opposed to having to dig through lots and lots of pages, where they are used to the technology, since you have presented it to them, and it would be worth thinking about whether that might be a way to help them use the documents in a way that is more meaningful.

And, finally, my last sort of in-the-middle of the night worry about their deliberations is the jury room itself. And it is one thing to confine 12, maybe 16 people in a room, with a few exhibits, but when you start with lots of exhibits, it might be worth my proposing to you and, if you think it's worthwhile, proposing it to Judge Ceniceros to have the jury use the courtroom for the deliberations, in which case your equipment is all set up and they can freely walk around the room. You know, the courtroom is closed and locked, like everything, like the jury room would be, but they have a little more space to do their stretching out.

So, I just throw those ideas out for you to think about, trying to make their job a little

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easier.

Mr. Randles.

MR. RANDLES: Yes, Your Honor.

My next objection is on Page 1198. It starts at line 3, and the objection is preemption.

THE COURT: 1198, line 3?

MR. RANDLES: Yes, Your Honor.

THE COURT: Response?

MR. COON: Well, I'm not sure this is -- the objection is preemption. I'm not sure it goes to -- it's not our challenge to the adequacy of the warning existing at any particular time. It's the development of the warnings as they were proposed and enacted.

THE COURT: But what helpful, admissible purpose does this potentially confusing passage add to your case?

MR. COON: I think we'll take it out.

THE COURT: Starting at?

MR. COON: Well, let's see. I think we have to go back from 1198, line 3. I think we might as well go back to 1197, 14.

THE COURT: All right. So, you are striking all of 1197 then?

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MR. COON: That's correct.
THE COURT: Up through how far?
MR. COON: And then we go to 1198, 24.
THE COURT: And you would pick up with the question on line 25?
MR. COON: No. That one is out as well. We would pick up on 1199, Line 9.
THE COURT: Line 9?
MR. COON: Correct.
THE COURT: Okay. We have got time for just a few more.
MR. RANDLES: Well, Your Honor, I think the discussion of the warnings continues on 1199, and actually intermittently goes through 1203, 14.
THE COURT: But what is it that the witness is talking about when he's referring to a document and a page?
MR. RANDLES: Apparently, he had prepared a chronology of significant events.
THE COURT: All right.
MR. COON: I believe it's in the Surgeon General's report.
MR. RANDLES: That may be right. It's a chrono.

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1 THE COURT: All right. Let me read 1199
2 in context, please.
3 MR. GAYLORD: Top of Page 1197 is where
4 the document is referred to as the Surgeon
5 General report.
6 MR. COON: As the '89 report.
7 THE COURT: Well, I don't think it's
8 objectionable for the jury to know what the
9 warnings are over time; first, because it's
10 pertinent on the consumer expectation test, and
11 on what someone in the shoes of Mr. Williams
12 would know.
13 What is objectionable is anything from
14 which the jury would infer that the warnings are
15 inadequate because as a matter of law. They are
16 not. And I have told them that.
17 So, I don't think reading the passage,
18 for example, on 1199 which says what those
19 warnings are is particularly hurtful.
20 Is there something more you want me to
21 consider there?
22 MR. RANDLES: No, Your Honor. The
23 problem is just the warnings get enmeshed. I
24 have a little concern on 1202, for example,
25 starting at line 12, where the questioner starts

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1 quoting the Surgeon General's report about
2 whether the public is adequately informed, and
3 that passage is mostly about warnings among other
4 things.
5 THE COURT: You are looking at the
6 question which reads -- now I'm going to jump to
7 Page 219?
8 MR. RANDLES: Yes, Your Honor.
9 MR. COON: What page are you on?
10 MR. RANDLES: 1202.
11 THE COURT: Well, again, those are
12 phrased in terms of what Americans know and the
13 consumer expectation test. And if, after the
14 reading of this witness's testimony, the defense
15 believes I need to do the preemption instruction
16 again so that they understand that the evidence
17 about warnings is admissible on the consumer
18 expectation, as opposed to criticizing or finding
19 the Defendant liable because warnings are
20 inadequate, I would consider that, once I heard
21 the whole in context.
22 MR. RANDLES: My next objection is 1280,
23 and there begins a long discussion of CTR,
24 whether it was public relation, whether it was
25 meaningful research. Again, this is repetitive

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of Pollay and Dr. Whelan.

Oh, I'm sorry, Your Honor. You don't have the same copy. Starting at line 50.

THE COURT: Right. I see that.

MR. COON: We are hoping that this would rehabilitate Whelan.

THE COURT: Having been attacked how?

MR. COON: Well, assuming that --

THE COURT: Oh, rehabilitate Whelan?

MR. COON: Yes. She will be tacked on the history.

THE COURT: But Whelan wasn't the primary witness on CTR. That was Benowitz.

MR. RANDLES: And Pollay.

THE COURT: There's also the issue at the top of the next page, where, at least on my copy, there's a highlighted portion in pink about being in front of Congress and lobbying for tobacco industry support.

MR. COON: And that should be out, obviously. We do not agree with the ruling, but we understand that that is the ruling.

THE COURT: Well, let me suggest that if the Plaintiff wants more evidence about CTR before the jury, which in my view really isn't

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new evidence, my view about its redundancy might change depending upon the extent to which Plaintiff's position is refuted in the defense case.

And like the other point made earlier on this reading, there might be a basis to reconsider it on rebuttal, depending again about how I can weigh the evidence once I have heard it.

It's very difficult, I want to say for the record, to try to weigh in terms of these discretionary calls something I haven't read in its entirety and relying on both of you to tell me the context. But it's hard to make that call.

To me, more evidence CTR is redundant, at this point, because we have heard it and we have heard it and we have heard it.

MR. COON: What if we took out -- we can take out the part from 1270, 1280, 15, down to 1285. We would like to -- 1285 and 86.

THE COURT: Every time you do that, you increase your chance that is not redundant.

Now you want me to read starting on 1286 where?

MR. COON: 1285, 16.

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MR. RANDLES: Your Honor, I can just agree to that.

THE COURT: That is great.

One more objection, and then we are bringing the jury in because we can't --

MR. COON: I hate to do this, Your Honor; we have objections to their counter-designations.

THE COURT: Well, we are just not going to finish this before we bring the jury in. I saw Mr. Swanson here.

MR. COON: We could take it up at the break then?

THE COURT: Well, maybe the two of you can talk, too, and maybe you can continue on in the spirit of pragmatism.

MR. GAYLORD: Can I forecast a schedule today?

THE COURT: Please.

MR. GAYLORD: Which may be relevant to the consideration? We are going to start by finishing Dr. Morgan's deposition reading. This would be our next thing to do. And, you know, it's hard to estimate what the length of this is at this point.

THE COURT: Sure.

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MR. GAYLORD: But my assumption is this will take us to noon. Perhaps beyond that. We have a live witness, Dr. Segal, at 1:30. We have a live familiar member witness to follow him. Neither of those two, I think, or in combination will take the afternoon. And if there is any of this left, I assume we would finish it then, and that is our day.

THE COURT: I'm assuming we have got all of our jurors. I see no reason not to start on Morgan.

And, counsel, are you the reader for Morgan? Can we do a shift?

MR. DUMAS: If it's clear, I'll go ahead and do the reading, if you want.

THE COURT: My thought is if the jury is here, the jury is hearing Morgan; the two of you can see if you can work out the rest, or at least refine them, so that it would be but a five-minute process for me to take out of the jury's time before we go to the next one.

MR. GAYLORD: Depending on the resulting length of Burns, today may be a short day. We may be less than full in our schedule. And we are on schedule. Depending on a little bit

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today, we may finish early tomorrow.

THE COURT: Great. Well, great.

And I want to say to the rest of the defense team, if Mr. Randles came back and reported to you that he was being pressured about the length of the defense case last night, that is a fair characterization. I was trying to communicate to both sides the ongoing need to be as efficient as possible because we told the jury it was a four to five-week case. And I want the case in the jury's hands on Friday, March 26, which is the Friday of the fifth week, and I want you to really work on figuring out a way to work backwards from there and then let me know, after you have gone through that, to see if you can.

MR. COFER: We are going to do that.

THE COURT: It just seems like it could be done.

MR. COFER: We are going to do that.

THE COURT: All right. And that includes rebuttal.

Now we are going to have to figure out how long you all are going to want for closing argument, as well. And I really, as I told you before, there's only been one time that I have

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1 ever limited anybody in terms of time, and I
2 don't want to do that.
3 So, I need to know what you think you
4 need. And, you know, if we can -- if we assume
5 that the case was going to be given to the jury
6 on Friday, the 26th, that assumption could
7 include instructions. It's going to take an hour
8 to instruct this jury. But they still have
9 several hours in the day. That means we would
10 have to do -- be finishing argument on the 25th,
11 which is Thursday, two weeks from tomorrow.
12 And the question is how long of an
13 argument are people going to want? And then we
14 need to work backwards from there.
15 I would think Plaintiff's would be able
16 to do a rebuttal case in under a half a day,
17 given the thorough presentation I have seen so
18 far.
19 So, you know, I'm just thinking if the
20 defense gets to start Friday, and a full week,
21 next week, that is still a few more days into the
22 following week, that is pretty close to two full
23 trial weeks. It's nine days, maybe. So, we
24 should be able to tell the jury that on Friday,
25 but I want you to think about it some more.

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Okay. You count; and, if they are there, bring them in, please.

THE CLERK: They are there.

MR. GAYLORD: Your Honor, excuse me. We may need a break right after, even though it's not a very long period of time, we may need a break after the finish of Morgan, but because there's some exhibits to fit on the machine.

THE COURT: Right. We have to work out the last objections, but I'm hoping that won't take long. So, let's get ready.

* * *

(Whereupon, after a recess, the proceedings continued, in the presence of the jury, in open court, as follows:)

* * *

THE COURT: Good morning, jurors.

JURORS: Good morning.

THE COURT: Mr. Swanson is back in the witness chair to read the rest of the testimony of --

MR. SWANSON: Dr. Morgan.

THE COURT: Dr. Morgan. Thank you.

I believe we were on cross in the reading when we interrupted, weren't we?

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You might need to bring Mr. Dumas to the page.

Oh, stand by. More pads. The jurors need more.

MR. DUMAS: Page 120, I think, line 7.

THE COURT: All right.

Everyone ready?

Mr. Dumas.

MR. DUMAS: Thank you, Your Honor.

DR. WILLIAM RAYMOND MORGAN

was thereupon called as a witness on behalf of the Plaintiff and, having been previously duly sworn, the proceedings were read into the record by Plaintiff's counsel and the answers were read by Mr. Doug Swanson, as follows:

CROSS-EXAMINATION

BY MR. DUMAS:

Q. Page 120, line 7.

Now on the nitrosamine research that you did between 1984 and 1992, I believe you stated that that was in response, in part, to the literature out there generally on nitrosamines?

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A. The work that was done between '84 and '92?

Q. Correct.

A. Some of the work we did was in response to what was in the literature, yes.

Q. In other words, you saw something in the literature and you tried to replicate it in order to assess its validity; correct?

A. I would say that is how the project initially started, but there were reports in the literature, and they wanted -- I think Philip Morris wanted to verify them. That was before I joined the project.

I think that about the time that I was joining the project is when they were beginning to expand into more aggressive study of different nitrosamines and not just verifying somebody else's work, but also looking at how nitrosamines are formed, how they are delivered in the smoke, and how they can be reduced.

Q. And that is very worthwhile research, isn't it?

A. Yes, I think so.

Q. And it's also worthwhile research to attempt to replicate results that were reported in

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the external literature to see whether they are valid; correct?

A. That's correct.

Q. And then the subsequent work that you did at Philip Morris, attempting to determine ways to reduce tobacco-specific nitrosamines in sidestream smoke and mainstream smoke, that is valid work, as well; isn't it?

It is important work is what I'm trying to say?

A. We actually only looked at the reduction in mainstream smoke. We did not really do any studies for reduction in sidestream.

Q. So, the work in terms of reduction of tobacco-specific nitrosamines and mainstream smoke, that is important and worthwhile work; isn't it?

A. Yes.

MR. DUMAS: Excuse me, Your Honor.

MR. THOMAS: Beginning on 122, line 14.

BY MR. DUMAS:

Q. I believe I asked you this. I apologize, if I did. You are not an expert in whether or not tobacco-specific nitrosamines or nitrosamines generally are carcinogenic, are you?

A. An expert, no.

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Q. And one's training as a chemist, an analytical chemist, wouldn't qualify one to be an expert on that subject; is that correct?

A. It wouldn't qualify them to become an expert. They could become an expert if they chose to do the studies.

Q. Are you familiar with the researcher named Arthur Penn?

A. Researcher?

Q. Correct?

A. Arthur Penn?

Q. Penn, P-e-n-n?

A. I don't recall the name.

Q. You wouldn't recall him from his research in nitrosamines?

A. No, I wouldn't.

Q. You're familiar with the Journal of Toxicology?

A. Yes, I am.

Q. Respected, peer-review journal, isn't it?

A. I would say so. Not being a toxicologist, I don't know how it ranks. But I think the hierarchy of toxicology literature but --

Q. Now, if there was an article published in toxicology in 1996 by Arthur Penn that stated there

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was no evidence that NNK is a human carcinogen would you have any basis to disagree with that statement?

A. 1996?

Q. In 1996. Let me read the statement again.

Would you disagree with the statement or have any basis to disagree with the statement that there is no evidence that NNK is a human carcinogen?

A. I wouldn't have any reason to disagree with him, no.

Q. And you are not aware of any?

A. I would like to read the article though.

Q. You're aware of no evidence to the contrary, as you sit here today, are you?

A. No.

Q. I believe Page 130, line 12.

You also said during your description of the alleged incident that Robin Kinser called Cathy Ellis while you were sitting in Robin's office; correct?

A. That's correct.

Q. Did you hear anything that Cathy said during that conversation?

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A. Not that Cathy had said, no.
Q. And then you said that Cathy had -- I'm sorry, that Robin Kinser had gone up to see Cathy Ellis and told you she was going there?
A. Yes.
Q. You didn't see her go and talk to Cathy Ellis, did you?
A. No.
Q. You didn't follow her up and see where she went, did you?
A. That's correct.
Q. Did you ever talk to Cathy Ellis directly about this situation?
A. No, I didn't.
Q. You never said Cathy, what's the deal? Why did you say I should get rid of this data?
A. I don't recall.
Q. Why didn't you?
A. I spoke to Robin about it.
Q. Now, what I need to know is whether you had any direct contact with Cathy Ellis on this alleged destruction of data before or after the alleged destruction?
A. I don't recall it.
Q. You never talked to her about it.

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Who, besides Robin Kinser, did you ever mention this incident to?

Let's break that down because that is a little too broad.

What I would like to do is find out whether you talked to anybody, any of your co-workers at Philip Morris, about the alleged destruction of this data, say, within a month of when it -- when you say it occurred?

A. I think I probably talked to several people within that day of when it occurred.

Q. Now who would those people have been?

Let me just ask do you have a distinct recollection of talking to people or are you just thinking you may have? I really need to know that.

A. To the best of my recollection, when the samples were being analyzed, and I saw the increased peak, NNK peak come out on the chromatogram, that I point it out to a Dr. Steve Haut, who worked in the same lab that I did, and said just the general comment of look how high the NNK level is. Then after the --

Q. What did he say in response to that comment?

A. Probably that, yeah, it is pretty high.

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Q. Not probably. Do you recall what he said?

A. Not specifically, but that is --

Q. Okay. So, you talked to Steve Haut, and that is H-a-u-t --

A. H-a-u-t.

Q. -- about it, as it was basically happening?

A. Right.

Q. Who else did you talk to about it?

A. After I verified what the cigarette was and the data was destroyed, I don't remember specifically, but I probably would have said, may have said something to Steve that, of what had happened and also to my two technicians that had worked up the data.

Q. Let me stop you there, if I can.

Are you talking about a specific recollection of telling them or are you saying that I had probably would have told them?

A. As far as the technicians go, well, Steve and I probably could have talked to him. As far as the technicians, I probably went back to them and conveyed to them that, and reinforced the fact that we were not supposed to run nitrosamines on

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production cigarettes, because normally they were the ones that would interact with the technicians that worked for Robert Comes.

And if they became aware of the fact that production cigarettes were being run, then to not provide him with collection traps to collect for, and so in that type of conversation I probably would have he said that I destroyed the data.

Q. Now who are those technicians?

A. That would have been Patty Kurth.

Q. How do you spell her last name?

A. K-u-r-t-h.

Q. Who else?

A. Ralph Kiser.

Q. K-i-s-e-r?

A. K-a-i-s-e-r.

Q. K-a-i.

Who else would you have told or who else do you recall having told about the alleged destruction of documents?

A. At that time?

Q. Yes.

A. No one that I can recall.

Q. So, you would have talked directly with Robin Kinser -- let me say it differently. The

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universe of people that you may have talked to about this would be Robin Kisner, Steve Haut, Patty Kurth and Ralph Kaiser; correct.

A. Possibly Roger Comes. I mentioned him earlier.

Q. Anyone anybody else at the company?

A. Roger had two people that worked for him in the chamber, Cathy Tatum and Leonard Brown. They handled the most of the runs, and potentially something may have been said to them. I was in and out of there all of the time.

Q. When you were told -- well, let me say it this way. When you said that you were told to destroy the data, what was your reaction?

A. I just followed what I was told to do. I didn't particularly want to destroy it, but I followed what I was told to do.

Q. Were you angry?

A. I wasn't angry. I was more interested in it from a scientific -- science standpoint, that I thought that that was one particular observation that we had made that could have significant scientific impact on how nitrosamines might be formed during smoking, because we were very interested in the power of synthetic formations.

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And this obviously wasn't transfer. So it had something to do with the power of synthetic formation, and to follow-up scientifically could give us some very important information as to how we may be able to prevent that formation.

So, I would have very much liked to have done additional research to investigate that.

Q. We'll get back to that in just a second.

Now besides the chromatogram, that was printed off of the chromatograph, any other written record of that experiment?

A. Yes, there was one sheet of paper. I think there were two runs made in the chamber, and when we injected into the gas chromatograph, we usually make like three injections of each sample. So I would have had a piece of paper that would have summarized that, would have averaged the results from all six injections.

Q. Where is that piece of paper now?

A. It was shredded.

Q. You shredded it yourself?

A. Yes.

Q. Now, did you make any -- let me back up and say was there an entry made of that experiment in the logbook for that particular smoke chamber?

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A. There should have been.
Q. And that log entry should have been sometime in the Fall of 1989?
A. I would say yes. There was an entry made because when I was given the sample that is the way we numbered it. We had a log number entry which was the day and the date. That was the date and the run number for that date.
Q. Do you remember when the run number was? Excuse me. Do you remember what the run number?
A. No I don't. So like today's run number would have been like 042496-1,2,3 or 4 to indicate which run number it was. And it had a run number like that on it. So I would assume it was in the logbook.
Q. So if this actually happened, there should be an entry in the logbook reflecting that this experiment was run?
A. It should be.
MR. THOMAS: Line 11.
MR. COFER: Line 11, he says.
BY MR. DUMAS:
Q. So, to continue my question, can you give me any idea of anything that would allow me to look at that lab book or that logbook and identify this

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entry or an entry reflecting some experiment?
A. If you had the logbook, it should be listed in there.
Q. But what would it look like? What would it say?
A. What would it say?
Q. Correct.
A. The logbook would have had the run number, would have had the cigarette that was run. It would have had what analysis were collected for.
Q. It would say TSNAs on it?
A. It would have had what collection was hooked up to what sampling board.
Q. Do you know those details?
A. If it was say a TSNA, it may have said TSNA and given sample words like 10 through 14 or something like that.
Q. But you don't recall what those would have been for this particular experiment?
A. No. Or we went over to a solid phase collection method, which was an extra loop tube, which was -- sided with a buffer or saturated wetted a buffer. So, it may have just said extra loop, which we use. It would have had numbers for other things like carbon monoxide, carbon dioxide

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levels, has phase things and had an entry of any abnormalities that occurred during the run such if they were going to run 30 cigarettes and maybe only 29 lit that only 29 were smoked.

Q. What I'm trying to ask you are there any details of that variety that you can share with me that would lead me to that entry in the logbook?

A. All I can say is you would have to have the logbook and go back to that time frame and look through it to see if there was an entry for Virginia Slims.

Q. Now, you mentioned that the cigarette would be actually listed in the logbook, the type of cigarette that was being tested; correct?

A. Yes.

Q. And there were a lot of production cigarettes that were tested in the smoke chambers; isn't that correct?

A. I'm not aware of how many production cigarettes were tested.

Q. But production cigarettes were routinely tested in the smoke chamber; correct?

A. I can't say that they were routinely tested or not.

Q. Are you telling me they were never

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tested?
A. I'm not telling you they were never tested. I classified routine as something you would do almost on a day-to-day or at least a week-to-week basis.
I think the majority of the cigarettes that were tested in the room probably were an experimental cigarette or developmental cigarette, but not, but not a production cigarette, and they would have probably been identified by code number.
Q. Right. But you are saying that production cigarettes were occasionally tested in the smoke chamber; correct?
A. I think they were, yes.
Q. And if they were, they would be listed by name; correct?
A. They should have been, yes.
Q. So if you were testing a Marlboro in the smoke chamber, it would say Marlboro; right?
A. Yes.
Q. But you're saying that when this Virginia Slims was being tested, that it had a number rather than the name?
A. No. Whenever we got one back from the chamber, we got the chamber run number, not the

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cigarette code number. That is way we kept our work.

Q. You are talking about a run number?

A. Run number for the chamber. Now if we wanted to know what cigarette it was, obviously if it was a cigarette, a run that I had requested, I would know what the cigarette was.

If it was a cigarette that somebody else had done, it would be listed in the logbook, but when I got the -- when my technicians got the run back, it would only have the run number, and for me to find out what cigarette it was I would have to go ask or call or have one of them go find out.

Q. And when you asked or called, they either came with an experimental cigarette code number or if it was a production cigarette the name of that cigarette?

A. That's right.

Q. Did you record this experiment in your own lab notebook?

A. No, I didn't.

Q. Why not?

A. Because I showed the data to Robin before I got to that point, because as soon as I had it tabulated and saw the numbers, I showed to it her;

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and when I was told to destroy it, I was told not to put it in the notebook.

Q. She told you not to put it in the notebook?

A. Obviously, yes, to destroy it.

Q. Tell me everything she said to you from the point in time that she got back, after leaving the office, to coming back and telling you to destroy the data? What exactly did she say?

A. I had gone back to my desk. I knew she had gone up because she had told me she was going up to see Cathy.

So I went back to my desk and was working on some other things. She came back, and she said she had talked to Cathy, and Cathy had said to destroy any data that I had on it, the chromatograms, anything written.

If I had done any calculations on the computers or any information that was put in the computer, to delete the computer files. I hadn't done that because I had done the averaging by hand with a calculator. So, I took the data, the shredder was outside, just outside the door of her office.

Q. Whose office?

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A. Robin's. I walked up the hall to the shredder, and she was standing, I think, sort of in her office door. The shredder was to the other side. So she would have been behind me. And we were talking when I shredded it. And I think that is when comments were exchanged about that was interested data, couldn't we do some kind of experiments to try to verify what caused the large increase, such as potentially having flavors added to Semi-Works produced cigarettes to see if we could generate that type of increase.

Q. Would flavors be expected to generate tobacco-specific nitrosamines on pyrosynthesis?

A. I don't know because all of the cigarettes we made in Semi-Works. The flavors weren't added to them.

Q. Did you make a written report to do that sort of research to anybody at Philip Morris?

A. Just a verbal question to Robin.

Q. What did she say?

A. She said we couldn't do that.

Q. Now, other than this alleged incident here, you were never instructed to destroy any other research or results at Philip Morris, were you?

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A. Not that I recall.
Q. Don't you think you would recall them if you had been asked?
A. I think I would.
Q. You never heard of any other instance at any other place throughout R&D where someone had been asked to destroy data from experimentation;had you?
A. I don't recall any.
Q. And was it general practice, the standard practice at Philip Morris not to shred data; correct?
A. I would tend to think so, yes.
Q. In your career at Philip Morris, did you ever get a result that was surprising, that you didn't run right to a supervisor and show?
A. That I didn't run?
Q. Correct.
A. I don't believe I ever got a result that was as surprising as that. A lot of times that I got information that I thought was very interesting, it may not have been a high level. It could have been a low level that I showed to my supervisors immediately.
Q. Is it your testimony that Philip Morris

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didn't run NNK levels on production cigarettes ever?

A. We didn't run nitrosamine analysis on production cigarettes. That was instructions we had.

Q. So, Philip Morris has never run TSNA levels, as far as you are aware, on production cigarettes in the United States?

A. As far as I'm aware.

Q. As far as you are aware, did Philip Morris run production cigarettes for TSNa levels anywhere in the world?

A. I don't have any knowledge of them.

Q. You don't know whether they did it over at Neuchatel?

A. Not -- I don't have any knowledge that they did.

Q. Did anybody in the external literature do TSNA testing on production cigarettes?

Page 149, line 5.

A. Yes. Most people that were doing research on nitrosamines especially in particular with tobacco, outside of the tobacco industry, used commercial cigarettes or they use the Kentucky reference cigarette.

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Q. So, there are many examples in the external literature of reports of TSNA levels in both sidestream smoke and mainstream smoke in production cigarettes; correct?

A. That's correct. Because they usually went down to the store and bought them, but they usually referenced them in the literature as being A, B, C and D, whatever. They usually didn't say what cigarette. So you really didn't have any idea or any way to compare it back.

Q. But I guess my point is that there would be, you know, numerous reports in the external literature that would relate the TSNA levels, in fact, the NNK levels of production cigarettes, production cigarettes?

A. The fresh sidestream smoke and mainstream smoke, the levels that were in the general ranges for what was reported in the literature agreed well with what we got on our reference cigarettes. But there weren't any reports that is I was aware of at that time where somebody had a chamber that they aged smoke. That was the difference.

Q. Were there reports in the literature in the 1980s concerning the artifactual formation of NNK in aged smoke?

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A. I know there were papers in the literature about artifactual formation in the collection of smoke, both sidestream and mainstream. I don't recall whether it was aged or not.

Q. If valid replicated experimentation was run on Virginia Slims cigarettes to determine NNK level in aged sidestream smoke, and if those results were contrary to your results, would you accept those if they were valid and replicated?

A. If they were valid and replicated, yes, I would accept them. But I would have to know who was running them, and maybe even be a partner in the actual analysis.

Q. Are you the only person who can do that? Are you the only person who is qualified to do that sort of analysis?

A. If I knew the person that was doing it, no. I'm not the only one that is qualified to do the analysis, but I don't know that I would just accept someone else's results because they replicated it, if I didn't know them and didn't know their abilities.

Because there are reports in the literature of artifactual formation in the

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collection of mainstream and sidestream smoke that I know are wrong, and those people claim to be right, and they replicated those results.

They had bad analytical technique.

Q. It's possible to have bad analytical techniques even when you are a good analytical chemist, isn't it?

A. It's possible to make a mistake, yes.

Q. It's possible you made a mistake in this run we are talking about now or those runs we are talking about now; correct?

A. It's possible.

Q. Now, volatile nitrosamine are effectively filled with mainstream smoke by regular cellulose acetate filters; correct?

A. That's correct.

Q. And cellulose acetate filters, those are the kinds of filters that are in cigarettes around the world; correct?

A. Yes.

One of them, obviously, there is some charcoal filter cigarettes. They do have cellulose acetate plugs in the end, so --

Q. Page 171.

You said that you brought your

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performance appraisals -- I'm sorry.

You said that you brought your performance appraisals with you?

A. Um-hmm.

Q. Why don't you actually pull those out and hand them to me, if you don't mind, sir.

If you don't mind, why don't you read to yourself the material on Page 1, continuing on to Page 2, under described results obtained.

And before you do that, sir, let me ask you, if you would, please, to identify this document that we're looking at that's been marked as Exhibit No. 7.

A. This document is my performance appraisal for the period of 1 November 1990 to 1 September 1991.

Q. You had read this performance appraisal at my request, a portion of that; correct?

A. That's correct.

Q. Tell me who drafted this performance appraisal?

A. It was drafted by Al Warfield.

Q. And who else would have seen this at the time?

A. Robin Kinser, Richard Carchman and Cathy

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Ellis.

Q. And then you obviously saw it, as well?

A. Yes.

MR. DUMAS: Dumb Page 175, line 16.

BY MR. DUMAS:

Q. Just to make sure I got the answer to my question, in that segment that I asked you to read, there's a reference to research that you were doing on the apparent or possible new nitrosamine; correct?

A. Yes.

Q. And at the time that this performance appraisal was written, had you yourself concluded that what you were looking at was a knew nitrosamine, as opposed to a known compound?

A. I had, yes, to the best of my recollection.

Q. Had you reported that conclusion to any of your superiors?

A. To the best of my recollection, yes, I had.

Q. Who?

A. Everyone that signed on the back here, Al Warfield, Robin Kinser, Richard Carchman and Cathy Ellis.

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Q. If you were satisfied that you had demonstrated that was a new nitrosamine, why didn't you write up the results for publication?

A. Internal publication.

Q. No, for external publication.

A. No. We never published on anything external.

Q. Are you telling me that Philip Morris never published anything on nitrosamine research externally?

A. Not that I'm aware of.

Q. And you are not aware of publications on nitrosamines out of Neuchatel in the 1980s?

A. I was speaking of in Richmond in the United States. I'm not aware of any publications in the external literature out of Switzerland.

MR. DUMAS: Page 177, line 16.

BY MR. DUMAS:

Q. Now, you testified on direct examination that you were instructed not to make reference to potential health effects that might be related to TSNAs; correct?

A. That's correct.

Q. And that is because you didn't research potential health effects of TSNAs; correct?

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A. That's correct.
Q. And for you to make statements in your research projects about health effects related to TSNAs would be tantamount to speculation; correct?
A. Yes.
Q. Yes. So, there is nothing inappropriate, was there, about telling you not to speculate about health effects that might relate to nitrosamines in your research reports; correct?
A. Not in making a conclusion about health effects, no.
Q. Now, you testified that in a couple of instances you were asked not to prepare a written report on some sidestream smoke studies; is that correct?
A. You're talking about here today or you're talking about in the previous deposition?
MR. THOMAS: 178, line 17.
MR. DUMAS: Excuse me.
Off the record, Your Honor.
Just a minute, Your Honor. I apologize.
I'm sorry. Page 178, line 14, the two-line answer. I'll read the question over again. Okay.
BY MR. DUMAS:

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Q. Now, you testified that in a couple of instances you were asked not to prepare a written report on some sidestream smoke studies; is that correct?

A. You are talking about here today or are you talking about in the previous deposition?

MR. DUMAS: Page 184, line 17.

BY MR. DUMAS:

Q. Nitrosamines are found in many instances, aren't they?

A. Yes.

Q. Found in beer?

A. Yes.

Q. Found in fish?

A. Cooked fish, yes.

Q. Cooked steak?

A. Yes.

Q. Coffee?

A. Probably. Just about anything that has been heated.

Q. And so the presence of nitrosamines in tobacco is not indicative of some unique property of tobacco, is it?

A. Not the volatile nitrosamines. I think in tobacco-specifics, maybe.

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Q. I have got a three-week-old son who is eating from a bottle. Are there nitrosamines in the nipple of his bottle that he's eating from?

A. I have read in the literature, there are.

Q. He is not in danger of contracting cancer from that, is he?

A. I have no idea. I don't know what the level of nitrosamines in the nipple are. I know there has been published literature that puts an upper limit on that bottle at ten parts per billion or approximately ten parts per billion, to the best of my recollection.

MR. DUMAS: Page 197, line 20.

BY MR. DUMAS:

Q. Now, we talked a little about, not we, on direct examination you talked a little bit about running experimental cigarettes versus running production cigarettes; correct?

A. Yeah.

Q. And as a scientist, if you wanted to test one parameter, one variable in a cigarette, what you would do, wouldn't you, is have two cigarettes that were exactly identical except for the variable you wanted to check; correct?

A. Probably have more than two.

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Q. You would have two different types?
A. I would have a range, yes.
Q. Isn't one good reason to use experimental cigarettes is that they are uniform?
A. They are not only very uniform, but you could have them made to direct your experiment toward the variable you wanted to study.
Q. So you use a control cigarette and then an identical cigarette, with the exception of that one variable that you would test; correct?
A. Yes.
Q. Can you do that with production cigarettes?
A. It would be probably pretty difficult.
Q. Because production cigarettes aren't uniform, are they?
A. They are not as uniform, because the brand wouldn't be the same, and there's only one of them.
Q. And production cigarettes will vary one from another one within a pack, within a carton and within a run, wouldn't they?
A. I mean it depends on what you are talking about variant.
Q. They would vary in amounts of flavorants

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and tobacco blend, et cetera, et cetera, such that you couldn't use those cigarettes in an experimental basis to check just one particular variable change one from the other, could you?

A. It would depend on what you are measuring.

Q. Let me ask you this: You want to run an experiment to see whether the addition of a particular chemical will reduce the level of nitrosamines in a cigarette. Are you with me?

A. Um-hmm.

Q. Scientifically, can you pick up a pack of Marlboros off the shelf, take one Marlboro and then another one, add the chemical to one, test both of those and say that that's a valid demonstration of the differences or the effect of that chemical you've added to the other cigarette?

A. You could do it, but not with one cigarette. What you would do is take a carton or two cartons of cigarettes, you would rip them open, dump all of the tobacco out, blend it out together, so you had them as uniform as you could,divide them into portions, spray the chemical on one portion, not spray it on the other, and then remake the cigarettes and compare them.

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Q. Those aren't production cigarettes when you're done with all of them, are they?

A. No, they wouldn't be. As far as the fact that you have handmade the cigarette, but they would have the flavorants and all of the other components put on in production, which we normally don't have put on in the Semi-Works.

Q. But you can if you want to, can't you?

A. In Semi-Works?

Q. Yes.

A. I doubt it.

Q. But you don't know you can't, do you?

A. They are put on. I guess they might be put on for some other tests. We weren't allowed to have them put on any other cigarettes.

Q. You weren't allowed to put flavorants on cigarettes at Semi-Works? Who told you that?

A. The nitrosamine were.

Q. Who told you that?

A. Management.

Q. Who is management?

A. Project leader right on up through.

Q. Give me a specific person's name, if you can?

A. I can't do that. It was just standard

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operating procedure.

MR. DUMAS: That's it, Your Honor.

THE COURT: Any further reading?

MR. THOMAS: No.

THE COURT: That does conclude the reading then of the witness Morgan?

MR. DUMAS: Yes, Your Honor.

THE COURT: Jurors, I understand we need about a five-minute break to set up for the next presentation. Why don't you step out to the jury room for that, and then we'll be with you shortly.

Leave your notes here, please. Don't discuss the case. Watch your step.

And you may step down.

MR. SWANSON: Thank you.

THE COURT: And your next victim may come.

Mr. Randles, can we do something on the record on your matters?

MR. RANDLES: Mr. Coon and I reached accord.

THE COURT: Lock you up in a room long enough.

MR. RANDLES: Exactly.

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THE COURT: I appreciate the effort. Thank you very much.

So there is nothing else for the record to Dr. Burns'; is that right?

MR. RANDLES: Yes, Your Honor.

THE COURT: Okay. Then you take a quick break, please.

* * *

(Whereupon, after a recess, the proceedings continued, in the presence of the jury, as follows:)

* * *

THE COURT: All right.

Jurors, we are ready to proceed now with the Plaintiff's presentation, which I understand will be the read testimony of Dr. David Burns.

Is that right?

MR. THOMAS: Yes.

THE COURT: And I just wanted to tell you that also, as I understand it, this is the last presentation of read testimony. And I know and the parties know that this is harder for you to hear. But I just wanted to let you know that it's not anticipated to continue in the Plaintiff's case.

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Also, Plaintiff anticipates resting sometime tomorrow. We are on schedule, so-to-speak. On Friday, before you recess for the weak, I'll be able to give you a better idea of when we think the case will be in your hands.

But you can imagine this is an important case for both sides, and predictions of when witnesses testify and all of that fluctuate. So, we're trying to give you as accurate information as we can. And I'll give you my best estimate on Friday.

Mr. Thomas, would you introduce your reader and testimony, please?

MR. THOMAS: Yes, Your Honor. This is the trial testimony of Dr. David Burns, from October 1, 1998. And the person who will be reading Dr. Burns' section is Larry Wobbrock.

THE COURT: All right. Mr. Wobbrock, come and get yourself situated.

MR. WOBBROCK: Thank you, Your Honor.

THE COURT: And even though you are reading, it's important that the juror way over here in this seat No. 1 has a sight line to you. So you have to have your chair as far right as you go, without going over the edge. There you

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go.

Mr. Thomas, whenever you are ready.

DR. DAVID MICHAEL BURNS, M.D.
was thereupon called as a witness on behalf of the Plaintiff and, having been previously duly sworn, the proceedings were read into the record by Plaintiff's counsel and the answers were read by Mr. Larry Wobbrock, as follows:

DIRECT EXAMINATION

BY MR. THOMAS:

Q. Dr. Burns.

A. Yes.

Q. Tell us who you are?

A. Dr. David Michael Burns.

Q. What do you do for a living?

A. Professor of medicine, Doctor of Pulmonology, University of San Diego School of Medicine.

Q. Did we ask you to come here and talk to the jury about the subject of smoking and disease and the history of tobacco?

A. Yes, you asked me to come and explain to

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the jury about how smoking causes disease, what diseases it causes, and the history of tobacco use and in particular cigarette use in the United States and this country.

Q. To become a physician in the United States, I assume you went to college?

A. Yes.

Q. Where did you go to undergraduate school?

A. Boston college, in Boston, Massachusetts.

Q. From there, where did you go?

A. Dartmouth, where I received a bachelors of medical science, then completed my medical training at Harvard, received my doctorate of medicine from Harvard Medical School.

Q. You graduated from Harvard Medical School when?

A. 1972.

Q. Now, following your completion of medical training, I understand that you were involved in a program called internship?

A. That's correct.

Q. Could you tell us about that, and residency, too, I guess they go together?

A. When you complete medical school you have a great deal of information, you know an awful lot

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about how the body works and how to treat disease, there's no real experience that prepares you for the responsibility of actually making decisions.

What we do in medicine is we have a period of time, actually a fairly long period of time, three, sometimes four, five years where you do that in a setting where there is daily supervision of decisions you're making.

You have to make the decisions. When you sign an order, that order will be carried out, but there is very close supervision from people who are more experienced --

Q. Slow a little bit down, please.

A. Right there with you, and intern is supervised by residents, then also there is supervision by the faculty who are watching the care of the patients and making -- helping you make the correct decisions about the way to manage that patient as well as teaching you about the strategies with which you provide care to people.

So I was an intern and resident on the Harvard medical service at Boston City Hospital, which is the county hospital, if you will, of the City of Boston, for two years, and we went through this process of taking care of patients, struggling

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to learn about day to day asking people who were more experienced teach us about that disease and learning about science and the art of medicine.

Q. How many years of college before medical school?

A. Four years of college before medical school.

Q. How many years of internship and residency?

A. Two years of internship and residency.

Q. So that is ten years of training?

A. Yes. Not even done yet.

Q. And we are not done.

You must have picked a field of specialty. Tell us what that field of specialty is?

A. I elected, after completed my obligation in the public health service, I spent three years at the University of California, San Diego as a fellow in pulmonary medicine.

Pulmonary medicine is the study of diseases that occur in the lung and chest cavity, including chronic lung disease and a variety of types of lung cancer and the management of the patients who are critically ill.

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Q. I'm sure the jurors know, but can you tell us what the field of specialty, your field of specialty you picked involved? What is it you do in your field?

A. I'm a specialist in pulmonary medicine. Pulmonary medicine specializes in the medical management of diseases in the chest,that is, I don't operate on people, I'm not a surgeon. What we do is we manage the care of patients with asthma, chronic obstructive lung disease, have a variety of different inter4stitial lung diseases, asbestosis, which is an occupational disease which causes scarring of the lungs, tuberculosis, infectious disease, damages the lungs.

Q. Dr. Burns are you board certified in your field?

A. Yes.

Q. Could you tell us, please, what board certification is? Why is that significant?

A. Well, I'm board certified in internal medicine and pulmonary medicine and I have a board certificate of special competence in critical care medicine.

Q. You're board certified in two fields, are you not?

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A. Yes. Board certified in internal medicine and a specialty of internal medicine which is pulmonary medicine.

Q. In order to become board certified, did you sit for written examinations conducted by people within a specialty field who are selected as experts?

A. That's correct. The examinations were developed by the senior physicians who provide training in that specialty. So in the case of lung disease, they would take the directors of major training programs in the United States, all obviously with a staff to help them, and they would develop the questions that go into the examination. The would balance out the questions to make sure that they cover all the important areas, and obviously they define what the correct answers are to those questions.

That's the group that sets the examinations that you have to sit for.

Q. Did you pass both? You passed both fields, you are advanced in both fields?

A. Yes.

Q. Now, after your completed that training, did you go to work clinically somewhere?

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A. Actually, the piece that is missing from this is that I spent two years in the public health service.

Q. Talk to me about that.

A. When I finished my internship and residency, I went into the public health service. The public health service is a non uniformed branch of the service.

Q. You have an additional answer, line 13.

A. They are the group that is responsible for working to deal with the public health of the United States, investigate the epidemics, dealing with chronic disease.

My task was working with the national clearinghouse for smoking and health. I spent two years in that process. We did some sort of combined training process and service, a lot of training that is provided to you by the Centers for Disease Control, and my responsibilities at that time were to prepare the 1975 Surgeon General's report on smoking and health, to answer questions nationally on smoking and health issues, and to help develop surveys of smoking behavior in the United States.

I spent two years in Atlanta with the

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national clearinghouse for smoking and health, then came to San Diego to take a fellowship in chest medicine.

Q. What is the national clearinghouse for smoking and health?

A. Well, the national clearinghouse for smoking and health is a branch of the public heath service. The public health service is the agency of the federal government that is responsible for public health. It includes the Food and Drug Administration, includes the National Institute for Health, and includes the Centers for Disease Control, among others.

The Centers for Disease Control are tasked with the surveillance and control of disease in the United States. That includes infectious diseases, including malaria, tuberculosis, immunization, and a variety of other infectious problems, AIDS, and they are responsible for chronic diseases.

One of the areas of chronic disease that they are responsible for is the chronic diseases related to smoking, and their branch at that time was the national clearinghouse for smoking and health.

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It was the part of the federal government that acted as a repository for all the information known at that time in the scientific literature on smoking and health. It was responsible for integrating that information into documents to provide to the Congress, and defined what we knew and what the official position of the Public Health Service was on smoking and health. It was responsible for conducting surveys to measure smoking in the United States, and it was also responsible for designing and developing interventions that might help people to quit or keep from starting to smoke.

Q. You used the word chronic. What do you mean by chronic disease, Dr. Burns?

A. There are -- in medicine we separate things into two categories. If you wake up in the morning and your throat is sore and you're coughing and have fever and you go to the doctor, that's what we call acute disease. It means that it happened rapidly.

If you develop chest pains running down your arm, you go to the hospital, and you have a heart attack, that is an acute event.

There are a lot of sub diseases, however,

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arthritis being one of the best examples, where the problem that you have didn't come on quickly and most certainly doesn't go away quickly.

So you have a gradual onset of pain in your joints. We manage to treat that and modify how symptomatic you may be, how much pain you have, and if disease stays with you, you have to learn to live with the disease process. That then is a chronic prolonged or long-term disease. In general, in internal medicine, we tend to deal more with chronic diseases, high blood pressure,heart disease, kidney failure, chronic obstructive lung disease, those are diseases that are chronic or long-term disease processes.

Q. You mentioned the Surgeon General's report. We'll talk about it a little later in the examination. Can we wait to do that?

A. Certainly.

Q. You have spent most of your professional career involved in the area of tobacco smoking, health; correct?

A. Well, for most of my career I've spent about half of my time in patient care activities,and half of my time on public policy or public health issues, a principal focus there being

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tobacco.

Q. Is the reason for your interest in the subject because of your starting out with the national clearinghouse on smoking and health?

A. Certainly that is part of the process by which I became knowledgeable and informed about it. As a physician, so much of the disease that we see is caused by tobacco that it's hard not to be interested in and concerned about. This is a problem if you are caring for individual patients.

And so when I was looking and asking for advice from the chief resident at Boston City Hospital, I was trying to decide what I should do and whether I should go into the Public Health Service, she encouraged me to take the position with the national clearinghouse because she felt it fit so well with my interest in lung disease and my interest in internal medicine.

Q. I have the bibliography of words I've been reading, and I see here that you were a clinical instructor and that you have acted as a professor of medicine, teaching residents, as well as practicing medicine. Tell us about that.

A. As I described the process of internship and residency, one of the responsibilities that I

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have as a professor of medicine is to help train medical students, interns, residents and fellows in the practice of medicine, both in the intensive care units in terms of general medicine practice, and also in terms of the specialty practice of chest medicine.

Q. You do this at the University of California medical school in San Diego?

A. Yes.

Q. I would like to go through several positions with you just to identify them. A scientific editor of the Surgeon General's Report to the United States Department of Health and Human Services. I don't want to explain this process yet, I want to know what the scientific editor is for the Surgeon General report.

A. The Surgeon General reports are reports that we'll talk about later that view all of the evidence that is known scientifically about smoking, and particularly smoking and health.

In order to do that, you have to assemble all the literature, someone has to be responsible to make sure you have it all, that it's organized in a way that is coherent and makes sense. That the conclusions are correct and that it actually

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comes together as a document that makes coherent sense, that it doesn't say conflicting things, that it presents a clear picture of the information.

That is the scientific editor's responsibility, it's not really going through and proof reading the document to make sure that the grammar and spelling and proofing of the text id done, that's a copy editor process, but someone needs to be responsible for the scientific content and its accuracy. That's the scientific editor.

Q. Coordinator, pulmonary clinical research and development laboratory at the University of California. What is that?

A. One of the responsibilities I have is to run the laboratory where we do special kinds of testing and do research evaluation of both eq1uipment and testing on people.

There are several types of testing that are done in a hospital. One is the routine standard types of testing; if you need to have your lung function tested you would go to the pulmonary function laboratory. Oftentimes, particularly in a critical care environment, there are special questions that we need to answer for special reasons on an individual.

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We need to make measurements of a specific person pressure, we need to do certain kinds of test and we need to evaluate new and promising types of equipment that may give us new information. The laboratory that I run at USD is responsible for doing that, doing the special testing, delivering medications. That is, for example, nitric oxide, which is a medication that opens up the blood vessels in the lung to improve blood flow through the lung, that's not approved by the FDA, has to be done in a very controlled way, njot done in many patients, between a small group of people highly trained to be able to do that kind of flexible physiologic testing and customize the delivery of unusual forms of care to patients.

Q. Research Advisory Board, institute for the study of smoking behavior policy, John F. Kennedy school of Government, Harvard University.

A. That's correct.

Q. What is that?

A. It's the Kennedy school, formed as a school of government which examines a variety of different issues. The had an institute that was examining the public policy aspect of tobacco, they were conducting research and doing various studies

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and a group of us acting as an advisory board come in two times a year to review the research they had done and make suggestions about research they might do.

Q. What is this policy advisory committee for community intervention, a trial for smoking cessation, National Cancer Institute?

A. National Cancer Institute initiated and conducted what remains a very large trial, the largest trial that has been done on a behavioral outcome. That trial was a intervention that looked at communities, and actually one of the communities was here in the State of Washington.

Q. You say trial; I think of what we are doing here. What do you mean by trial?

A. I apologize. I realize that that probably has a different connotation in this environment.

The trial is a test where what was done was they selected eleven communities where they would make a concerted effort to work with those communities to help change smoking behavior. They also selected eleven communities very close in proximity, it would be a controlled community where they wouldn't make the intervention.

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The trial,then, is a test to see whether the community where you made the inter4vention was more successful at controlling smoking behavior than the community where you did not make an intervention. It is very common in medicine to refer to this type of testing as a trial. One that most people are familiar with. As you give someone a drug and see where they get better, you give another group of members a placebo, sugar pill, and see whether the rate at which the people who got the real drug get better is higher than the rate at which people get better with a placebo, that is a way of testing scientifically to see whether a drug works and whether one intervention or one medication is better than another.

Q. I'm sorry?

A. I was going to say that the trial was very large. I believe it was about 100 million dollars when it was finally done, and with that amount of money the cancer institute asked a group of experienced advisors, myself included, to monitor the decisions being made and the conduct of the trial.

As the trial goes on they have to make decisions, what to do and not to do, and we were

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1 responsible for monitoring that process on the
2 policy advisory board.
3 Q. Doctor, you were a committee member of
4 the surveillance implementation group of the
5 National Cancer Institute. What did that consist
6 of?
7 A. Recently -- this is something that is
8 currently under way, the National Cancer Institute
9 has conducted a review of all of its activity, that
10 they are trying to do a -- what most organizations
11 do periodically, which is to examine how they are
12 doing things and what they are doing, see whether
13 they should change direction.
14 One of the areas that they are examining
15 is the question of what kinds of things they do
16 surveillance on.
17 Surveillance is the repetitive
18 measurement of disease rate or a behavior or the
19 incidence of illness steadily over time.
20 For example, you all have seen I think
21 reported in the newspapers death rates in the
22 United States, changes in death ratesin the United
23 States. That is a form of survei8llance. We look
24 at whether the death rate from a given disease is
25 changing. As time goes forward, if it's changing

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we look for the reasons why it might be changing. If it's improving, then we can use that as a measure of the success and to a certain extent it's the ultimate measure of our success at intervening to prevent that disease.

Q. You received the American Lung Association Life and Breath award for distinguished community service. What was that award and why did you receive that?

A. Well, the American Lung Association is the national voluntary health agency that is interested or has defined as its mission lung disease. I worked through the years obviously as a chest physician very closely with the lung association, and in San Diego in particular we looked very closely to help the lung association and the City of San Diego develop and implement regulations that restrict the locations where men can smoke in order to protect nonsmokers from exposure to secondhand cigarette smoke.

Q. You also received the Surgeon General's medallion?

A. Yes.

Q. Tell us about that?

A. I was quite proud to have received that,

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there is less than 20 people who received that award. It is an award given by Surgeon General C. Everett Koop for the work that I've done on the national level to develop and explain and present the information on the health consequences of smoking, and particularly the work that I've done with the Surgeon General's report on smoking and health.

Q. I'll switch subjects and talk about publications for a minute.

A. Okay.

Q. You have published The Health Consequences of Smoking.

Was that a report that --

A. Yes.

Q. And that was in 1975?

A. Actually, the first publication that I have on my CV, the first thing I wrote was the 1975 Surgeon General's report. I was a health officer, medical officer with the national clearinghouse at that time and it was my responsibility to review all of the evidence that had been accumulated in the last year and to organize and present that evidence in a report5.

That was the 1975 report of the Surgeon

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General on smoking and health.

Q. You also published The Health Consequences of Smoking For Women?

A. There are a series of Surgeon General reports that I have been very deeply involved in, both as author and editor. They include: the 1979 Surgeon General's report was a 1500 page review of everything that was known at that time, the 1980 Surgeon General's report which focused on the consequences of smoking for women, 1981 Surgeon General's report which looked at the changing cigarettes, low tar and nicotine cigarettes, what information did we have on whether they changed risks.

In 1982 we focused on cancer, and it is a detailed examination of everything that was known at that time about the relationship between smoking and cancer.

In 1983 we did the same thing with heart and vascular disease.

In 1984 we looked at lung disease.

In 1985 we examined the relationship of smoke and those diseases that occur in the workplace, particularly cancers that occur in the workplace, and chronic lung disease that occurs in

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the workplace.

In 1986 we examined the data on secondhand smoke exposure, and subsequently I have been a reviewer for reports that have examined the question on addiction and the question of the benefits of cessation when you stop smoking, what happens to your risks after you stop smoking. There have also been reports on smoking in the Americas and more recently smoking in minorities in the United States, I was the reviewer on all of those reports.

Q. Those reports are the Surgeon General reports?

A. That's correct.

Q. You were a participant in those reports?

A. Yes.

Q. One of the reports dealt with the -- 1981 Surgeon General report dealt with the health consequences of smoking, the changing cigarette?

A. That's right.

Q. You participated in that?

A. Correct. It was an effort to look at the technological changes in the engineering of the cigarette product and whether those changes would reduce the disease consequences of using the

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product.
Q. In 1983 the subject was the heath consequences of smoking, cardiovascular disease; correct?
A. Yes.
Q. In 1984 the health consequences of smoking, chronic obstructive lung disease?
A. That's correct.
Q. Now comes to a book I know something about. You also contributed to a book known as Cecil, that is a textbook of medicine?
A. Yes.
Q. In the United States there are two classic books on internal medicine, Harrison's and Cecil's?
A. That's correct.
Q. You contributed to this -- how many times did you contribute to this book?
A. Twice I authorized chapters on tobacco in Cecil.
Q. Now there is a reference to a W. D. Saunders publication in 19981, cigarettes and cigarette smoking. Tell us about that.
A. Saunders produces a series on chest disease which are thin books that deal with

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individual topics. I authored a chapter there on cigarette smoking and changes in smoking behavior.

Q. There is a publication in 1994, epidemiology of lung cancer and health and disease, and we have used with the jury already this word epidemiology. Could you translate for us what epidemiology is?

A. Sure. Epidemiology tends to unfortunately get too heavily focused on complex statistics.

But the truth is that epidemiology is simply observations of groups of people.

There are two ways to observe them, you can observe them looking backwards in time, for example, you could take all the people who have lung cancer and see whether they smoked more than a group of people who don't.

Another way to do epidemiology is to take a large group of people that don't have anything wrong with them that you know o9f and then follow them forward in time, and see what happens to individuals who have different characteristics, see whether the smokers get more disease than the nonsmokers in that population.

Epidemiology is nothing more than a word

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that describes observations of human populations over periods of time in order to find conclusions about what causes illness or disease or other problems in those populations.

Q. I counted 92 publications, books, publications and peer review articles and so on. We only covered a few of them. Am I correct there are 92?

A. I would accept your count.

Q. I want to ask something else, Dr. Burns. Are you here to advocate banning smoking and the sale of tobacco?

A. No. And I have a long-stand position, as do most members of the public health community, that that would be inappropriate.

My goal is to eliminate the disease. And as a physician I sit at the bedside of people and have to tell them that they have lung cancer, have to tell them and their families that they are going to die of it. That is not a process that anybody wants to have happen, and when it happens because of something that is preventable, it's particularly tragic. Therefore, my goal is to eliminate that burden of disease as we go forward in time. That will probably mean that we're going to have to

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1 encourage those people who are trying to qui8t to
2 be successful.
3 But my goal is not to ban smoking,my goal
4 is to get rid of the disease. And I have a firm
5 position that I think it would be wrong and
6 counterproductive, for that matter, for the State
7 or for the federal government to ban the
8 manufacture or sale of cigarettes.
9 Q. Now, I'm going to move to the reason I
10 brought you here, the subject. So that we
11 understand how you formed the opinions that you are
12 going to express, could you tell us, start with
13 one1, how many years have you been in medicine?
14 Start with that?
15 A. Well, I guess it depends on when you
16 start. I've sort of been in medicine since 1968,
17 when I started medical school.
18 Q. I think you misspoke.
19 A. 19 -- well, I guess it depends on when
20 you start.
21 Q. You got the number wrong. You transposed
22 two numbers. So, could you read it again?
23 A. I have been --
24 Q. Just read that sentence that again.
25 A. I'm sorry. I have been in medicine since

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1968. Did I say that wrong?

Q. You got it wrong the first time; right the second.

A. Sorry.

When I started medical school, but actively taking care of patients since 1970, when I began as a medical student to work within the hospital environment, and have been responsible for the care of patients directly since my internship, and been independently responsible directly for the care of patients as a member of the faculty and as a physician on the staff of the University of California San Diego medical center since 1979. I've been involved in studying issues and tobacco since 1974, and have been continuing in reading, studying, examination of a wide range of sources of information, some of them the traditional scientific literature, some of them descriptions historically of how tobacco use developed, a lot of them related to tobacco behavior, and more recently documents that have become available from the tobacco industry itself that defines the knowledge that they had and what they were thinking about during this same period of time.

Q. You have participated in how many Surgeon

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General reports?

A. I have been an author, editor or reviewer of every Surgeon General's report since educate, that's tore 5 or 16 of them. I would lose count.

Q. Have you reviewed documents that have become available in the last few years from the internal documents of the tobacco companies?

A. Yes. I reviewed a wealth of documents, specifically documents that relate to the technical knowledge that they had, the types of evaluations they were doing on different types of cigarettes, what kinds of testing that they were doing on those cigarettes, as well as their strategy and thinking on the development of tobacco products.

Q. So, do you feel that you are in a position to talk about this subject knowingly and with some authority?

A. Yes.

Q. Throughout my examination of you, when I ask you about your opinion, I want you to know that the law says that your opinion has to be based upon reasonable medical certainty if it deals with a medical, reasonable probability if it deals with any -- I'll try again.

Throughout my examination of you, when I

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ask you about your opinion, I want you to know that the law says that your opinion has to be based upon reasonable medical certainty, if it deals with a medical reasonable probability, if it deals with any other opinion?

A. Yes.

Q. I'm not going to use that phrase also, but if you cannot say it with reasonable probability, point that out to me?

A. I will make every effort to do that.

MR. WOBBROCK: Counsel, we are not on line 20 here?

MR. THOMAS: Page?

MR. WOBBROCK: 1057.

MR. THOMAS: No.

MR. WOBBROCK: Okay.

MR. THOMAS: Directing your attention to Page 1079.

MR. WOBBROCK: I'm there.

BY MR. THOMAS:

Q. I forgot to cover one thing with you. That is, filer cigarettes. When did filter cigarettes come on the market? I'll come back to the subject, but time-wise, historically?

A. Filters were first placed on cigarettes

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in the 1940s, but very few people smoked filter cigarettes until the mid-'50s when the tobacco companies began to manufacture and market filtered products very heavily, then there was a rapid rise that has continued, until currently about 97 percent or so of all of the cigarettes consumed in the United States are filtered cigarettes.

Q. Dr. Burns, based upon reasonable medical certainty, do you have an opinion as to whether or not smoking causes disease?

A. Absolutely there. There is no question in my mind that cigarette smoking causes disease.

MR. THOMAS: Page 1085.

BY MR. THOMAS:

Q. Can you tell me your understanding as to the scientific organizations which believe that smoking is a cause of disease, have so concluded and publicly concluded?

A. There is a vast array of organizations that publicly concluded that, they include the US Public Health Service, World Health Organization, American Cancer Society, American Lung Society, American Heart Association, America College of Chest Physicians, American Thoracic Society. There is a very large number of organizations that have

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concluded that smoking causes disease, and no organization, with the exception of the tobacco industry, which has reviewed this information from the last 0 years and concluded that there was not data sufficient to say that smoking causes disease.

Q. How do we know -- how do you conclude and how do those other organizations conclude that smoking causes disease?

A. The first thing that you need to understand about the way science reaches a judgment is that it doesn't reach a judgment by a single piece of information in a vacuum.

The way the scientific community reaches a judgment i8s by looking at all the evidence available, and it looks for evidence from multiple lines of reasoning to support the same conclusion.

For example, in cigarette smoking,look at what is in the smoke. You identify the toxicity and carcinogenicity of chemicals in the smoke, look at what happens to people who smoke,look at what happens to people who have certain diseases to see whether they smoke, look at men who smoked follow forward in time to see whether the rate at which they get disease is different in smokers and non-smokers, looking at autopsy studies of people

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who died to see what their lungs and hearts looked like, see what their aorta, which is your major blood vessel in your abdomen looks like, and see whether they are different from smokers and non-smokers.

Look at the excretions that you cough up out of your airways, much as you would a Pap smear of a cervix to look for cervical cancer in women. You can see a progression of change from the normal cells to cells that are precancerous and ultimately to cancerous cells, then look at what happens when the smoke is removed, what happens when people quit smoking.

Does that smoke, when it is stopped, change the risk?

Does the risk of lung cancer change relative to people who continue to smoke? When you see a change in that risk, when you see a change in the cells that people cough up to go back toward normal, and put all of that information together, reviewing everything that is known, you can reach a clear, solid and supportable scientific judgment that smoking causes disease.

The American US Public Health Service has done that, conducted that review, the volunteer

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health agencies, heart association, lung association, Cancer Society, the Royal College of Physicians in Britain, Canadian College of Physicians, Canadian government, various organizations of world health organizations, most other national organizations, almost all the health organizations that have entered to examine this issue, and every single organization that has looked at this evidence in the last 30 years has concluded that smoking causes disease.

That leads us to be 100 percent certain that, to summarize, have looked at this, it's been reviewed so many times, but by so many groups with different approaches that we can be certain that cigarette smoking does indeed cause disease.

Q. What is carcinogen?

A. Carcinogens are compounds or chemicals that can cause cells to change from normal cells to cells that are cancer cells.

The characteristic of a cancer is twofold. It gains the ability to invade other tissue and it loses the ability to stop growing.

Normally, if you cut your skin, the tissue and the cells on both sides begin to grow, they grow across until they cover that space,that

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is the cut. When they touch each other, they are finished, their job, covered the entire surface and they stop growing.

If you don't stop growing, then those cells mount up and create a tumor, a growth, a swelling.

If that swelling continues, it gets bigger. If it gains the ability to not be bound, to not be contained by the structures around it, but rather to be able to insinuate itself into those structures, grow into them and destroy them. Then it is cancer and these are compounds that have been shown to be able to cause cancer.

The are compounds in cigarette smoke that have been identified as carcinogens.

Q. This word compounds, are we talking about nicotine and alkaloids and so on under that?

A. There are approximately -- what the graph shows is that there are probably approximately 17 in this case, nicotine alkaloids. Nicotine is a chemical contained in cigarettes, it is the principal drug that people are attempting to get from cigarette smoking, that's what they are attempting to ingest, but there are other variants of that compound that are similar, that have a

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similar chemical composition that are present in cigarette smoke.

There is also a variety of different other hydrocarbons which essentially means a compound that contains both carbon molecules and hydrogen molecules, also phenol, another chemical class of compounds, of those. They have a different shape to the chemical structure and they are in tobacco, specific nitrosamines. Nitrosamines are a class of compounds that contain many carcinogens, and there are six that are specific to tobacco, that are unique to tobacco products, and more than one of those have been identified as cancer causing agents.

Q. Nitrosamines.

A. Nitrosamines. Sorry.

Q. Please tell us what that is. Say it out loud.

A. Carcinogenic inorganic compounds.

Q. What is that?

A. These are compounds that don't have an organic structure, for example, nickel, arsenic, metals, therefore they don't have the carbon base that is typical for most carcinogens, or most of the compounds that are present from anything that

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is grown, like a tobacco leaf, or indeed our own bodies. .

Q. Read that to us.

A. These are carcinogenic organic compounds, these are ones that have an organic structure and are also involved in the carcinogenic process.

Q. Carcinogen. One more time. What is the layman's definition of carcinogen?

A. These are cancer causing substances.

MR. THOMAS: I'll show you -- actually, I don't have it.

MR. WOBBROCK: I have it here, counsel.

MR. THOMAS: Oh. Okay.

BY MR. THOMAS:

Q. I'll show you Exhibit 203. Demonstrative. Do you recognize that?

A. These are the cancer specific death rates for males in the United States from 1930 through about 1944 or '5.

Q. I have to lay a foundation for the record.

Is it based upon reliable data?

A. Yes. It is based on the American Cancer Society's report on cancer facts and figures which is based on U.S. mortality data which is the death

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rate data for the United States.

Q. And will it be helpful in explaining your testimony to the jury?

A. Yes, it will.

Q. Please explain this exhibit to us, Doctor?

A. These are the death rates for males from various common causes of cancer deaths. Lung, cancer of the prostrate, cancer of the stomach, cancer of the colon, rectum, cancer of the liver and pancreas and annual death rates from 1930 through 1944 or '5.

Q. Why is this important information?

A. The first question that would come to mind from that previous graph that showed lung cancer rising with per capita consumption is aren't all cancers increasing, isn't the frequency with which cancer is occurring growing in time and industrial pollution, all kinds of things that could potentially cause cancer?

If you look at the actual US cancer death rate, what you see is that lung cancer has gone from a tiny number to two and a half times the next largest cause of cancer deaths among males.

So much cancer has actually been

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declining.

Most of the other cancers have been relatively flat.

Some increase in cancer of the pancreas, so the issue is did the rise in cancer death rates and not just the common increase in all kinds of cancers.

Q. Say that again.

A. It's not simply a common increase in all kinds of cancers, it's not that we're better at diagnosing cancer, it's not that we have more sophisticated tests for finding out who died of cancer, it's not that people are reporting cancer on death certificates more frequently, because lung cancer is going up, whereas most of the other cancers are not. I believe we have a similar graph for women.

Q. I'll put that up as soon as I show it to you here.

A. This is the same type of information for women, you see that cancers obviously are somewhat different, the common cause of cancer in women, including cancer of the uterus and breast and ovaries, all of which are possible female diseases, or in the case of breast cancer very, very unusual

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in males. This is cancer death rates, you can see that this line in red represents lung cancer death rates in women.

It goes up beginning in 1960, not beginning in the 1930s. It has now in the mid-1980 eclipsed breast cancer as the largest cause of the cancer deaths in women, but this didn't go up the same way that males went up.

So how would you explain that? Why would that happen? That didn't seem to make any sense. Well, it's explained by the fact that men began to smoke, particularly cigarette smoke in the 1920, 1920 period.

Women began to smoke cigarettes in large numbers in the 1930, 1940 period.

And if we can show the next graph.

Q. Showing what has been marked as Exhibit 205, which I'm sorry we do not have, What does this represent?

A. This represents the rates of initiation among cohorts, for males and females between the ages of 20 and 24, young adults for the years 1910 through the early 1980s.

Q. Wait a minute, initiation, what are you talking about?

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A. Initiation of cigarette smoking.
Q. Starting to smoke?
A. This is the data from the U.S. National Health.Interview Service where we ask people or where they ask people what was the age at which you first began to smoke regularly? Went back and looked at people born within certain calendar years so we knew how old they were, and we were able to identify the rate at which they started to smoke at different ages, but we knew the age which they start, we knew how old they were so we were able to identify going forward in time the rate at which young men and women begin to start smoking cigarettes.
Q. You said cohorts. It sounds like a couple of people about to do something bad. What are we talking?
A. I said cohorts; not cahoots.
Q. What are we talking about?
A. Cohort is nothing more than a group of individuals followed close in time and in this case what we're talking about is birth cohorts, which simply means people born during specified calendar years. We use five-year periods in time, so one born between 1910 and 1914 would be in o9ne cohort

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and the next cohort would be people born between 1915 and 1920. Each of those cohorts, obviously, would be a certain age in a given calendar year, so we were able to plot the age at which people began to smoke as we moved forward in time.

Q. Is this based upon reliable data, Doctor?

A. Yes.

Q. Will it assist you to explain your testimony?

A. Yes.

Q. Doctor, can you explain this to us, please?

A. This graph explains why female lung cancer death rates went up much later in time than male lung cancer death rates. You can see that by 1910 males were beginning to smoke in very high percentages. This is their annual frequency with which the group starts to smoke, so each year five percent of these folks would start to smoke cigarettes.

Women, on the other hand, hardly began to smoke at all until the 1930 period. And took it up in fairly substantial numbers beginning in the 1940s.

So what we have now is another piece of

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evidence that shows that the relationship between lung cancer increasing and cigarette smoking increasing is one that is specific to cigarette smoking.

The men started smoking in 1900, 1910, the lung cancer starts 20 years later in 1930. The women began to smoke 1930, 1940, their lung cancer rates began to increase in 1960, so we had the same relationship, and again that would be truly remarkable if it were explained by anything like increased ability to make a diagnosis or better rates of autopsy or more specific diagnostic capabilities on the part of medicine.

Q. So, the conclusion from these studies that you have drawn is what?

A. The conclusion is that when you look at the overall picture of what is going on in the United States that there is a very strong suggestion that the lung cancer epidemic that we are seeing was indeed related to the upsurge in cigarette smoking that had occurred earlier.

Q. I would like to call your attention to demonstrative Exhibit 207, please.

Can you tell us -- I think easiest way to do it, I'm not sure, may be with the pointer.

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Explain this exhibit to us.

A. Okay. This is a graph that is a group from one of the largest prospective studies of American Cancer Society cancer prevention study, one followed over a million men and women for 12 years, for 11 million person years of observation. This is data for males. What it does is it takes the number of cigarettes per day reported by people at the start of a study, so when they first enrolled they were asked how many cigarettes a day do you smoke? Some of them smoked less than half a pack per day, one to nine, 20 cigarettes in a pack, some smoked between ten and 19, the most common response usually for a single number is 20. People say I smoke a pack per day.

Some folks said they smoke 21 to 39 cigarettes per day and some folks said they smoked more than two packs per day.

So that is at the start of the study.

Then what you do is follow those people forward in time and you compare the frequency with which they die of lung cancer in comparison to non-smokers of the same age and that generates what is called a relative risk.

The death rate in people who smoke as a

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ratio or in relation to per death rate of people who don't smoke.

When we look at that we see that going forward in time people who told us before they had any diagnosis whatsoever that they smoked one to nine cigarettes per day had about 3.8 or 3.9 times the rate of developing and dying of lung cancer as men who didn't smoke.

When you look at people who smoked between half a pack and a pack, it's up to about eightfold.

When you look at people who report a pack, it's up to about 12 times.

So the people who reported that they smoked one pack of cigarettes per day died of lung cancer at 12 times the rate of people who never smoked cigarettes.

When you get out to 21, more than a pack but less than two packs, 21 to 39 cigarettes a day, you're up to the 15 to 16 range, and by the time you get out to two packs a day you're up in the 18 or 19 range.

People who smoke two packs per day were dying of lung cancer at 19 times the rate at which people never smoked cigarettes died of lung cancer.

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You can also look at dose in a couple of other ways, you can look at how long people smoked. Because that's another measure of the cumulative effect of the inhalation of these carcinogens day after day on the lungs.

When you look at the length of time people smoke, you see a steady increase in the risk of lung cancer from 20 years of smoking to 25 years, 30 years, 40 years, it keeps going up.

You can also look at the age at which someone started to smoke. The earlier you start, the more you have been exposed to tobacco at any given age. The earlier you start, the higher your risk of developing lung cancer.

So when you look at the precision with which smoking is related to lung cancer death rates and you look at it by number of cigarettes and look at it by how long you have been smoking, when you look at it by when you started to smoke, all of those show increasing risks in those with higher exposure to the smoke, so we're now very comfortable that this relationship is a relationship between the smoking behavior and the occurrence of the lung cancers.

Q. Would it be an over simplification to say

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the more you smoke the greater your chance of cancer when you look at that chart?

A. No. That is clear, the message the longer you smoke the more you're at risk of developing lung cancer.

Q. I'll show had you demonstrative Exhibit 208, which I am sorry but I don't have a copy of.

Can you explain this to us, please?

A. Certainly. This is the risk when you stop smoking. If the disease is caused by the exposure and if the risk of the disease goes up when you increase the amount of exposure, when you quit smoking the risk or the amount of exposure in the people who have quit decreases relative to people who continue to smoke.

So if we want to know with confidence that the risk is cause by cigarette smoking, then we ought to see that risk change as people stop smoking.

So this graph is again from the American Cancer Society study of the million people, but it looks at the risk in people who stopped smoking for various periods of time, two to four years, five to nine, ten to 14, 15 to 19 and 20 to 24 years, and it looks at their risk of lung cancer relative to

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individuals who never smoked. Again, the people who have no exposure to cigarettes. This is the risk in people who continue to smoke. And it takes quite a bit of time before stopping smoking alters your lung cancer risk. The reason for that is that when you have a cancer forming process in your lungs, the step at which it becomes irreversible is the point at which a single cell develops the ability to invade and loses the ability to stop growing, it becomes a cancer.

There is a long period where that cell continues to grow and it grows steadily month after month after month until it gets large enough to make you sick, make you symptomatic, to cause you to cough, then you go see your doctor and get a diagnosis, the doctor takes a biopsy and says you have lung cancer but you don't die that day, you die sometime in the next months to a couple of years.

So when we get to the two to four-year period we're looking at the first time when we might expect to see any decline. Continuing smokers again are up here 13 or 14 times, the risk, by the time you are out five to nine years, by that time, when all those cancers that had been in place

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at the time that you -- that people quit have already manifested themselves and people have died of them and you are looking at the rate of new cancer occurrence, you see it's lower, it's gone down to about nine.

Go out to ten to 14 years and see, it's gone down further.

By the time you get out to 15 to 19 years, down to about 3. So now your risk is about three times of the risk of someone who has never smoked. Unfortunately, even when you get long after your cessati8on there is still a small residual effect of all of that carcinogenic exposure that occurred while you were smoking and your risk remains about twice that of someone who has never smoked cigarettes.

But what we have now is a very clear and compelling demonstration that not only does that exposure to lung cancer very closely relate to the occurrence of the lung cancer on the upstroke, but that cessation of cigarette smoking also relates very closely to lung cancer with cessation, and the longer you're off, the lower your risk relative particularly to people who continue to smoke.

Q. Thank you. Retake your chair.

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When we talk about the connection between smoking and lung cancer, terms such as cause or association can be used, is that correct?

A. Yes.

Q. Causes may come up. Can you explain to us what those words mean when we talk about them? Are these two connected to each other?

A. In any epidemiologic, or for that matter in any scientific study you can have two things that occur together. You get up every morning, the sun comes up every morning. So the question then is, are you causing the sun to come up or is that just an association that occurs?

So the demonstration that two things occur together is an association.

For example, when we looked at the lung cancer death rates in the United States and the change in cigarette consumption in the United States we see an association between those two.

Having demonstrated that the two track together, you then need to move to the next step, which is to say does one cause the other?

And while there probably have been people in this world who thought that the sun came up because they got up in the morning, that is not

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1 something that the scientific community believes
2 causes the sun to come up in the morning.
3 So how do we sort that out?
4 One -- well, one way to sort it out is to
5 examine the kind of detailed data you have just
6 seen. If the data tracks very closely, as it does
7 with the amount of exposure and the duration of
8 exposure, when you control for other factors, when
9 you look at people with family histories of cancer
10 and you see that the smokers still get more cancer
11 than the non-smokers, when you look at people who
12 work in urban environments and people who live in
13 rural environments and see that the men in urban
14 environments who get lung cancer are still smokers
15 and men who get cancer in rural environments are
16 still smokers, that when you look at men with
17 different occupations you see that the smokers
18 still get higher rates of lung cancer in
19 occupations, so you now have this very close
20 relationship between the risks and you've also got
21 an explanation that says it's very specific to the
22 cigarettes.
23 When you look at things like diet, look
24 at things like where people live, when you look at
25 how old men are, when you look at the different

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occupations that men have, when you look at twins you find that it is the smoker who is at higher risk of developing lung cancer.

The next step, then, is to look at other sources of data. What happens with the cells of people who smoke and don't smoke when you look at them? What you see is that people who inhale as smokers have more changes in the cells that line their airways than men who don't smoke.

And you can see that when they stop smoking those changes reverse.

You look at what is in the smoke to see whether the compounds there are capable of causing this disease, you expose animals to those compounds, expose animals to smoke and you see that the smoke itself can cause disease on the skin. Put all of these lines of evidence together, then you're able to say this is not simply an association, this smoking behavior causes the occurrence of lung cancer.

Q. I need to take you though this. I'm sorry, but I need to now ask you about changes that occur in the lung as a result of cancer, and you have charts, I'd like to start with 209, if I could. If I could get you to come down to 209,

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please.
A. Shall I read on counsel?
Q. Yes.
A. Well, I'm trained for lung disease and you should therefore expect that I'll have a bias that I think the lung is really a neat organ, I think it's a wonderful structure, as most of you know, very large structure contained inside the chest and brings the air into that structure through a series of tubes. Those tubes are called bronchi, or the trachea. The trachea is the big first tube, than after they branch they become bronchi. Those tubes are lined with cells and there is a purpose behind that lining.
The purpose is to protect you from all of the stuff that you inhale. As we have evolved through history we were exposed to dust, fires, all kinds of things. We inhaled things into the lungs that the lungs didn't want to have there, and so what happens is the structure of the lung developed this way. The produce a series of these cells there are tall think cells that have the little hair-like structure on top of them, they are called cilia, and on top of that cilia sits a very thin layer of water and mucus.

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What happens to protect the lung is those dust particles you i8nhale and on to which mucus and these cilia move that mucus and carry it up out of your lungs and dump it i8nto the back of your throat where you swallow it. It protects the lung, cleans the lung and saves the lung from being exposed to these toxic substances.

Those cells are like the cells of your skin, they get thrown off about every 24 hours and you make new ones.

So if you damage one of these, if the carcinogen in the smoke gets in and attacks the nucleus here, it doesn't make any difference because that cell is destined to be cast off by the body anyway, so this protects the lining of cells of the airway. It is these cells down here that need the protection from the carcinogen. They are dividing and changing all the time. They are the cells that are going to stay with the body, they produce and grow into the larger cells, but they are there for your entire lifetime.

So what happens, then, when you start to smoke?

The next --

Q. Go back, please, before you do that.

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Before you go to the next one, this triangular shaped things are cells?

A. Yes.

Q. These round things are the nucleus?

A. Yes. The cell, the part of cell that controls the genetic material, NDA in the cell that causes it to replicate and reproduce the information that codes for all of the development of that cell.

Q. This upper thing is also called a cell?

A. Yes.

Q. Do these things have names?

A. Those are called columnar epithelial cells.

Q. Sorry I asked.

The ones down here at the bottom are the ones that stay?

A. Those are called basal cells or basilar cells.

Q. The next Exhibit is 210. Thank you.

A. Well, the smoke that you inhale, any of you, whoever smoked a cigarette will remember that your first cigarette was probably pretty irritating, when you inhaled you probably coughed. That is because the lung has a protective reflex,

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the cough, to bring that stuff up to prevent you from inhaling things that irritated the lung.

And there are a number of very potent irritants in the smoke. What happens when you inhale the smoke is those smoke particles deposit on the top, on top of the cilia, but there are several compounds in the smoke that paralyze those hair-like structures and keep them from moving.

They prevent the normal clearance of those particles out of the lung, so the cilia stop moving, particles are sitting on top of that lining. The normal response of a body from repetitive irritation is to change. The most common experience we all have is the building up of callus on our hands, and feet, some of us on our butt, but that is a thickening or a change in the normal cells of the skin. If you repetitively expose the lung to any irritant --

Q. Any irritant?

A. Any irritant, any substance that continuously irritates it over a long period of time, the structure of the cells change and these square like cels, it's almost as if the cells are hunching down to protect themselves from that irritant, but they no longer have cilia on top.

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Now this doesn't occur in every cell all across the lining of the airway, it occurs in patches. But those patches interfere with the clearance of the lung and the removal of the smoke particles, so now the smoke particles get to sit here for a longer period of time, get to dissolve and get to work their way down to these cells that are dividing and replicating and are going to stay around the entire lifetime of the individual.

The carcinogens present in the tobacco smoke are able to go up from there at the top of the airway down into the cell and into the DNA, into the nucleus of the cell, into the memory that divides the cell and produces another normal cell just like it and was able to get in.

That process occurs over a substantial period of time, it may take years or longer before you begin to see these changes in the airway.

The other change that occurs is the lung begins to make much more mucus. And any of you who have known a heavy smoker who smoked for 0 or 0 years know they have what is called smoker's cough, where they are constantly coughing up stuff up out of the lung, that is the extra mucus. The lung makes an effort to protect itself from the

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repetitive exposure of the smoke.

Q. The hair-like structures across the stop are missing on this exhibit?

A. Yes.

Q. And the structure of the stems looks different in this exhibit?

A. That's correct.

Q. Why is that?

A. Well, what has happened, when someone smokes, they inhale the smoke and it deposits on the cilia. They inhale ten puffs a cigarette, twenty cigarettes a day. That's two hundred times a day that they inhale particles that lay down on there. They do that seven days a week, 365 days a year, continually depositing this irritating, toxic set of particles, carcinogens, toxins, irritants. Here. Until the lining of the airway begins to respond. It responds in a way to protect itself much as your skin thickens and develops a callus. When it does that the cells that are responding,these cells have lost this elegant structure of ciliated, tall, column-like cells. So what has happened is in order to hunker down and create this thick protective callus the lung has had to give up an important part of its protective

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mechanism, the mechanism by which it cleans itself from all of the dust and particles that are inhaled and deposited in the lung.

Q. All right. Exhibit 211.

A. Now that protective barrier is gone, a big part of what carcinogens and the toxins in the smoke up and out of the lung disappears. Now they can deposit on the surface and stay there. Gradually they will be cleared by other mechanisms that the lungs use, cells will come and eat them, will cough out some of those particles. But they stay around longer. They also stay around longer because when you inhale the, smoke the cilia become paralyzed for about twenty to forty minutes. What then happens? As the particles sit there those carcinogens dissolve and migrate into the fluids surrounding all these cells through the cell walls into the cytoplasty and into these nuclei. What a carcinogen does -- what many carcinogens do, particularly one of them, benzopyrene, that is benzopyrene, that is present in cigarette smoke, is it interferes with the replication of the DNA in the cell. the DNA reproduces much like a zipper. When you open it up the two sides of the zipper become open and the cell is then able to replace a

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specific known base, a specific agent on top of that opened up zipper to reproduce completely the DNA.

So as it opens up one side goes on each side, the body then replaces the part that is missing because it fits together in a certain way. And you are able to reproduce the DNA. What happens with the benzopyrene is it sticks on that open zipper. And now when the body comes along to put in a new piece it gets a wrong message. And it produces a DNA that is different, it is damaged.

Now, most of those changes don't mean much. They are either very bad and the cell dies, in which case it doesn't get carried on through time, or there are changes to parts of the DNA that doesn't make any difference. But there is one spot on the DNA where it does make a difference. And where these accumulated changes build up to change a specific gene, it is called p53, and that gene is one that prevents the cell from unregulated growth. So when you damage that gene enough so that it no longer works the cell has now lost the ability to stop growing. And you are partway down the path to that cell becoming a cancer.

Increasingly, as the DNA is damaged by

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repetitive exposure over and over again over time to these carcinogens, other changes in the DNA occur until finally the cell is actually a cancer cell. What we see in the early stages of those changes is not too dissimilar from what we see on a Pap smear from a woman's cervix. You see changes in the way the cell looks, there are normal cells that you see and then there are these cuboidal cells that are a little bit abnormal, but the DNA has now begun to change some, and the nucleus of the cell is bigger, it becomes larger relative to the surrounding cytoplasm. And that is called a dysplastic change. That's -- if you will, a change that doesn't work well. Very similar to the changes that are present in a woman's Pap smear with infection or with any kind of other irritation, but it is a concern because as you go further and further down that path the cell is getting closer and closer to one that could be a cancer.

Q. Now, Doctor, on this 211, on the top there is a word; that word dysplasia?

A. Dysplasia.

Q. What is dysplasia?

A. Dysplasia means that the word that you

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are seeing, plasia is abnormal, doesn't look right. It looks deviant, it looks different, it looks damaged from what ought to be present in a normal structure.

Q. And these nuclei that we see that are not round like the others, that is obviously not normal, I assume?

A. That is not normal.

Q. Would this slide represent cancer --

A. No.

Q. -- necessarily?

A. In order to have cancer occur, you have to have multiple sequential changes in the DNA. You don't get a cancer because one day one piece of your DNA has changed. You have to change multiple parts of the DNA. So that's why it takes a long time from the exposure to a carcinogen to the time a cancer actually develops. And you can have these cells replicate, you can have other damage occur, that cell replicates, divides and becomes more cells, more damage occurs, until ultimately there is enough damage to that DNA structure for the cell to the cell itself that it becomes a cancer cel. It becomes a cell that has lost the ability to stop growing and gained the ability to invade the tissue

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around it.

Q. If we were to actually be able to see the area depicted on Exhibit 211 that is abnormal in the lining of the lung, are we talking about something the size of the end of an eraser, something bigger than that? What are we talking about in size so we have some idea of proportion?

A. These cells are approximately the thickness of the hair on your head. So the width of this cell would be approximately the thickness of one of the hairs on your head. So there is numbers of these cells lined up along the airways that line the lungs that you breathe through, tubes that you breathe through to get air into your lungs.

Q. Do you mean -- I think you said earlier if one of those cells becomes changed that is the start of cancer?

A. If -- if all of the cells in the lung get exposed, some of those cells develop the cubital changes, some of the cells that develop cubital changes develop these abnormal nuclei. Those nuclei progress. And then ultimately one of those cells that has been pushed as far down that in fact makes a fundamental change, the last straw that

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breaks the camel's back, and the cell then becomes a cancer cell. It gains the ability to invade other tissue and it loses the ability to have its grown inhibited by bumping up against the cells around it. So it can now grow in an unregulated fashion, and it can grow into the structures that it comes in contact with. And that's the hallmark of a cancer.

Q. Exhibit 212, Doctor, can you explain what this exhibit represents?

A. This is the next stage where we really begin to become worried. This is the equivalent of a free neoplastic stage in a Pap smear. The nucleus is now not only big and irregular, but the inside of it is irregularly colored. The lumps are a little bigger in this diagram, but it looks as though it were mottled or like a palomino -- not a palomino, a pinto. My wife is into horses. I get them confused. But it looks like an irregular density.

And what we are seeing is the DNA in that cell no longer looks normal. A lot of damage has now been done, but the cell is still functioning. The cell doesn't grow in an irregular fashion, doesn't stop growing, doesn't invade, but the

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nucleus of that cell really looks very abnormal.

Lots of changes have occurred in the DNA, have occurred in different parts of the DNA, different cells have been changed,multiple days,multiple points in time the changes occur in that DNA structure that causes the DNA to recommend indicator reproduce differently.

And, finally you have enough damage occurring that even the nucleus begins to look very irregular.

Q. Now, you have a word at the top of the chart. Would you tell us what the word is and what it means, please?

A. That is metaplasia. Again, plasia being sort of picture, and meta means changing. It is becoming a cancer.

Q. This is not cancer yet?

A. That is not a cancer yet, because the cells do stop growing.

Q. Exhibit 213. Go ahead.

A. The next step and the final step for an individual cell is it converts to a cancer cell. Now, as opposed to having a layer of cells, you can see that it is growing in an unregulated fashion. It keeps growing, bumps up into the surface, and it

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bumps down below the surface. This is now what is called carcinoma in situ. Many of you have probably had friends who have had Pap smears who have had carcinoma in situ. It is a surface cancer and if you can catch it at that point in time you can cure it by removing this area, which may be no bigger than a pin. Maybe a very tiny area. And OBGYN, obstetric and gynecological physicians do that surgery, they do it by scraping, by freezing, various ways. Just taking off enough to get rid of that pile of cells that has become a cancer. And if you catch it before it invades --

Q. Sorry.

A. If you catch it before it invades, before it breaks through the barriers that surround it, and remove it, then it is gone, and while that person technically developed a cancer, you caught the cancer in time to cure it, and that's the purpose of doing Pap smears in women.

The same process has been tried with lung cancer, where you look at the cells that smokers cough up,and you look at how they appear under the microscope. And you see these changes in the nuclei, and you see how it progresses, and you can actually see cancer cells in patients who have

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cancer. The problem is,in contrast to a Pap smear, within the lung by the time you are able to see it in the sputum that is coughed up it is usually too late, the tissue has already been invaded. And while you catch the disease earlier, you don't catch it early enough to allow you to cure it by removing it.

Q. I think we all know, but carcinoma means what?

A. Carcinoma means cancer.

Q. Exhibit 214, Doctor?

A. This is the second piece of what makes a cancer a cancer, the ability to invade. And it shows two separate pieces of that ability to invade. As you can see, we have got t5he cancer. Only this time this barrier layer, its membrane that sat under that basil layer of cells in the lung, the cancer has now broken through it, and invaded it. It is now no longer a carcinoma in situ. It is now an invasive cancer. This may still be no bigger than the top of a pin. But it has grown down through, and it has begun to grow into blood vessels. And when it does that one of the things that can happen is the cells can break off into the blood vessel and be carried to other

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parts of the body. Most of you are familiar with the term metastatic disease. Someone who has a cancer of the lung, they get the tumors spread to their liver, to their pancreas,to their kidneys, to their adrenal glands, to their brain. What has happened is the tumor has broken off into the blood supply, those cells have been carried by the blood supply to another organ where they have lodged or stuck there. And then they have begun to grow there.

So it is very common in a cancer patient when you look at the chest x-ray, you will see the tumor in the lung. It will look like a golf ball sometimes, sometimes it looks like an irregular mass on the chest x-ray. Then when you look at the rest of their organs you will find that sometimes they have multiple round lesions, multiple round spots in the liver, sometimes they will have them in the brain, sometimes they will have them in the bone or in other structures. And the combination of the tumor in the lung and these tumors that have spread otherwise to the body, to other organs, is what creates the picture that we define clinically as cancer.

The word cancer comes from the Greek word

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for crab, because what the Greeks saw in patients who developed cancer was it looked like someone was being eaten away inside, both in terms of the pain it caused and also in terms of the wasting, the loss of weight that was characteristic of a patient with cancer. So they called this disease cancer, because it appeared as if the tumor was eating away at the normal structures. And that is indeed what is happening.

This tumor has gained the ability to invade, eat the structures around it. It also sends out substances that prevents blood vessels from growing. And the body from -- from using nutrition from the rest of the body. It usurps or takes away the nutrition and the blood flow from the rest of the body to nourish the growth of the cancer. And so what you see in cancer patients is they become thinner and thinner and thinner. And ultimately one of two things happen. Either they get so thin that they starve, starve to death quite literally, and therefore they get pneumonia or they get bleeding or some other complication of nutritional deficit, malnutrition, or the tumor or one of its peripheral sites grows up enough to interfere with the function of the body that the

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person no longer is able to survive. The tumor grows and shuts off the ability to breathe, the person suffocates, the tumor grows in the liver and interferes with the ability of the liver to detoxify and purify the blood. It grows into the bone and blocks the spinal column,making someone paralyzed or it goes to the brain creating a mass in the brain that increases the pressure in the brain and makes someone initially look like they have had a stroke and ultimately die because of the increased pressure and the increased size of that tumor in the brain.

And so the critical aspects of a cancer that make it such a terrible disease are this ability to invade and the ability to go to distant parts of the body. And that is the result of a long, sequential, multi staged process of damaging the DNA inside those cells in a way that the cells lose their ability to invade and destroy other tissue.

Q. If you go now to the chronology at page 677, 1984, you see the rotational warnings?

A. These are the actual warnings approved by Congress through the process of legislation. And it includes the four warnings that I referred to.

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The first says that smoking causes lung cancer, heart disease, emphysema, and may complicate p0regnancy.

The second says that quitting smoking now greatly reduces your serious risk of disease.

The third says smoking by pregnant women may result in fetal injury, premature birth and low birth weight.

And the last says that cigarette smoke contains carbon monoxide.

MR. RANDLES: Excuse me. May we approach?

THE COURT: And while we are interrupting you, how much more reading do you think, Mr. Thomas?

Multi-tasking. You know, expecting him to do two things at once.

MR. THOMAS: Excuse me. Just a moment, Judge.

Less than five minutes, I think.

THE COURT: Go ahead with your reading, please.

MR. THOMAS: All right.

THE COURT: Go back and read the question, the witness was interrupted in the

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1 middle of the answer, and so we get a complete
2 question and answer, please.
3 BY MR. THOMAS:
4 Q. If you go now to the chronology, 1984,
5 see the rotational warnings.
6 A. These are the actual warnings approved by
7 Congress through the process of legislation. And
8 it includes the four warnings that I referred to.
9 The first says that smoking causes lung cancer,
10 heart disease, emphysema, and may complicate
11 pregnancy.
12 The second says that quitting smoking now
13 greatly reduces your serious risk of disease.
14 The third says smoking by pregnant women
15 may result in fetal injury, premature birth and low
16 birth weight.
17 And the last says that cigarette smoke
18 contains carbon monoxide.
19 Q. Now, Dr. Burns, each one of the warnings
20 that we see here starts out Surgeon General's
21 warnings; correct?
22 A. That's correct.
23 Q. From the time warnings first appeared on
24 the packages of cigarettes, did any of the warnings
25 say RJR, or the tobacco industry or Philip Morris

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warns?

A. No, none of the tobacco companies, to my knowledge, acknowledges that these disease risks are causal.

Q. We are going to come back to that. But what I want to do next is, if you will allow me, I would like the jurors to see the scope of what the Surgeon General reports covered. In other words, I want to identify topics without going into the details behind the topics. If you will let me, I would like to go through so we can see the sorts of things that were discussed in these reports.

A. I will try to constrain my natural desire to expand on these issues.

Q. I didn't mean to imply it that way. Let me go to the preface of the report. For example, Page iii --

A. Perhaps might be helpful to give you some background, in that most surgeon general's reports are from three to about nine hundred pages in length, and are extensively documented with references to the existing scientific literature. The one he has is -- here is one of them. And most of them are of comparable size and scope.

Q. So, the first thing I want to show you in

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this exhibit on this page and ask you about was, you will see that they speak of a report in an 964 of the surgeon general, and they refer to it as a landmark document. Is that your understanding as well?

A. Yes.

Q. And you will see in the next paragraph that they speak of reviewing more than 7,000 articles on smoking and disease?

A. That's correct.

Q. And can you tell us whether or not, based upon your experience, that this is the consensus approach you were describing to the jurors earlier?

A. Yes, absolutely.

Q. Now, I'm going to jump to Page 219 of the same exhibit in terms of topics again and point out at the bottom of this page this language: Despite the growing level of public knowledge noted above, a substantial number of Americans are still uniformed about or do not believe the health risks of smoking. And they go on to discuss this.

So can you tell us whether or not it is your understanding the surgeon general report talked about the effectiveness of information of risks of smoking?

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A. Yes, absolutely.

Q. And if we look at page 221 of the exhibit it says, persons may have knowledge or beliefs at one level or at one level but not in another. For example, some smokers may be aware of the surgeon general's reports and accept the general fact than smoking is dangerous but do not believe that they will be harmed by smoking. Is that something that your group studied?

A. Yes. Sure.

Q. And on this same subject, if we go to Page 665 of the report, you see the language surveys in the sure 970s found that large portions of the smoking public believe that some cigarettes pose little or no health risk. As such many smokers may have perceived low tar and nicotine cigarettes as an alternative to quitting smoking that would not compromise health. Is that something you are familiar with?

A. Yes, it is.

Q. Excuse me just a second, Doctor. I'm just going to arbitrarily put this on the screen and we will talk about it. The title of this is the tobacco industry's public statements on disease -- public statements on disease causation.

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And so to explain this to the jurors, on the left side we see a reference to an exhibit; correct?

A. That's correct.

Q. We see a date. The first one happens to be 2/23/55; correct?

A. That's correct.

Q. We see a source of where it came from?

A. That's correct.

Q. And we have a quote; correct?

A. That's correct.

Q. And as I have indicated on the record, we also have the backup documents that are in that folder. I want to call your attention to -- I will start right here with the second entry. This is a speech by a gentleman from Philip Morris in 1957.

There is not one shred of conclusive evidence to support the link between cigarette smoking and lung cancer.

Do you see that reference?

A. That's correct.

Q. If we go to this compilation -- these pages are not numbered, we also see a statement that is a broadcast by Philip Morris, we don't believe that cigarettes are hazardous, we don't accept that. .

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A. That's correct, by Mr. Cullman, who was the president of Philip Morris, the person who was in charge of Philip Morris.

Q. Here is another example, and we don't have it, Exhibit 2597, 10/20 of '83, appearance of Tobacco Institute spokesperson on 20/20. The case is till open. The jury has not come in.

A. That's correct.

Q. And here is another example. This is a letter which is dated January 11, 1990. Do you know who this person is?

A. I believe he is one of the public relations staff of the tobacco companies, but I'm not sure specifically who he is.

Q. It says despite all of the research going on, the simple and unfortunate fact is that scientists do not know the cause or causes of the chronic diseases associated to smoking. The answers to the unanswered controversies surrounding smoking and the fundamental causes of the disease were often statistically -- statistically associated with smoking, we believe can only be determined through much more scientific research. We would appreciate your passing this information on to your students. Okay.

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A. This is in 1990?
Q. Right? These are some examples of some public statements, are they not?
A. They are.
Q. How do you find out if there is controversy within the scientific health community on a subject like CTR?
A. In general, you look at the editorials and publications from scientific journals. You look at what is written in scientific newsletters, and you see what is said at scientific meetings.
Q. Take a peer review journal like the American Medical Journal. If you saw an article in there that was critical of the CTR, would that tell you something about whether there was controversy, for example?
A. One would certainly expect if it was describing controversy that would be evidence of its presence.
Q. Take the most prestigious, New England Medical Journal?
A. New England Journal of Medicine.
Q. That's what I get for being a smart -- that's the only name I knew. If we saw an article in there that was critical of the CTR, could we

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draw a conclusion about whether there was a controversial group?

A. Yes.

Q. And as a matter of fact, articles like that have appeared and do appear in peer review journals?

A. Yes, they do.

Q. Now, you have looked at any none of documents over many years; correct?

A. Yes.

Q. Including peer review publications?

A. Yes.

Q. And are you in a position to see whether or not there was controversy within the scientific community, especially the health community, about the CTR?

A. Yes.

Q. What was the nature of that controversy?

A. Well, the nature of the controversy was twofold. One, it was that the source of the money was coming from tobacco industry sources. And that the fact that they wee spending money on research, and the fact that researchers were applying for that research money, was being used to suggest something that was not true scientifically,l which

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is that the fact that researchers are still applying to us for money was used to suggest that there are open questions here, there are unresolved scientific questions. And that made the scientific community very uncomfortable, that this scientific process was being used to misrepresent to the public the state of the scientific knowledge on this issue. And that made people very uncomfortable.

The second was that there was discomfort that the CTR had been established to find out whether smoking caused disease, and what they were funding was research that was very basic molecular types of research that would never directly answer that question. And yet that research was being used to suggest, we don't yet understand all the steps in this process, and therefore we cannot say something is causal.

That's not the way the scientific community works, and that's not the way the scientific community thinks. People in that community became increasingly uncomfortable with the net result of scientists having accepted this fund raising. And that led to a great concern about whether that was a reasonable thing for

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individual scientists to do.

MR. THOMAS: That concludes the direct examination.

THE COURT: Thank you, Mr. Thomas.

Jurors, we'll take the noon recess now.

Mr. Gaylord, can we start at 1:15 with your live witness and finish the reading at another time?

MR. GAYLORD: I think so. That is my guess. Information is that he should be here by then.

THE COURT: All right.

Jurors, if you will be back at 1:15, we'll continue, and then well have the rest of Dr. Burns' testimony read at an appropriate time.

Thank you for your attention. Don't discuss the case.

See you at 1:15.

I was just going to say it's a good thing you all don't make your living predicting time.

MR. THOMAS: Sorry, Judge.

THE COURT: Based upon what time it took to read the direct, what's your best estimate on how much more is left?

MR. RANDLES: I'm not real good at this

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estimating by the page, but I would guess 45 minutes or so.

THE COURT: We have got live witnesses early in the afternoon. So, just take your cue from Mr. Thomas about when to be back, please, Mr. Wobbrock.

MR. WOBBROCK: Okay.

THE COURT: Anything for the record at this point?

MR. GAYLORD: No, Your Honor.

THE COURT: All right. See you at 1:15.

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(Whereupon, the a.m. proceedings adjourned.)

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STATE OF OREGON)
) SS.
County of Multnomah)

I, Jennifer Wiles, hereby certify that I am an Official Court Reporter to the Circuit Court of the State of Oregon for Multnomah County; that I reported in Stenotype the foregoing proceedings and subsequently transcribed my said shorthand notes into the typewritten transcript, pages 1 through 148, both inclusive; that the said transcript constitutes a full, true and accurate record of the proceedings, as requested, to the best of my knowledge, ability and belief.

Dated this 15th day of July, 1999 at Portland, Oregon.

_____
Jennifer Wiles
Official Court Reporter

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